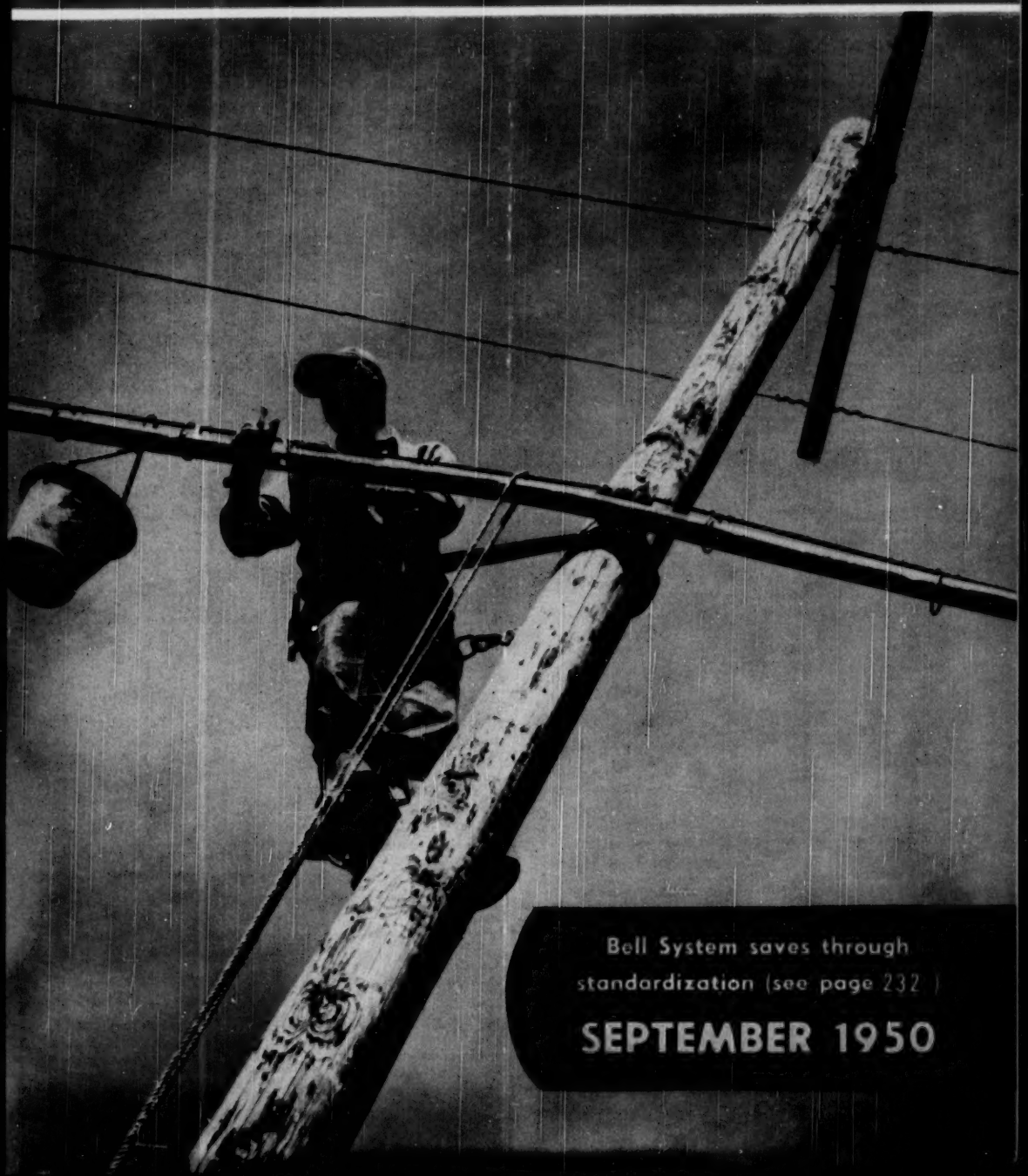
Standardization



Bell System saves through standardization (see page 232)

SEPTEMBER 1950

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Marginal Notes

Veltfort—Of Copper and Brass Research and ASA—

There is more to interest STANDARDIZATION readers in the story of the Copper & Brass Research Association (page 225) than is evident at first glance. The added interest lies in the character and accomplishments of the author of this month's article —the volatile and able manager of the Association, T. E. Veltfort. Known intimately to his associates on ASA's Standards Council and Committee on Procedure simply as "Ted," Mr Veltfort is recognized as one of the sturdiest props and defenders of ASA's democratic procedures.

Mr Veltfort has been with the copper and brass organization since 1933 when the Copper and Brass Mill Products Association was founded. Before that, he was engineer, executive assistant, and consultant with the Stone & Webster Engineering Corporation. After consolidation of the Copper and Brass Mill

Ewing Galloway

Standards Manual Issued by the Copper and Brass Research Association.

Products Association and the Copper and Brass Research Association in 1940, Mr Veltfort was named Manager of the reorganized Association.

Not content with handling the problems of this association and those of his various offices in the ASA, Mr Veltfort has also served as

president of the Trade Association Executives in New York City, and of the American Trade Association Executives. At present, he is chairman of the Advisory Council on Federal Reports.

Interpretations—

From time to time sharp criticism is heard that American Standards are not easily handled in meeting current problems. One way has been found to answer this criticism by setting up a standing committee for the purpose of answering questions that arise in applying a standard. Successful in the case of such well-known groups as the Committee of Judges of the Z16 committee on Compiling Accident Statistics, this technique has now been put into effect in establishing an Interpretation Committee of the new American Standard Safety Code for Mechanical Refrigeration. May this new committee have a successful career, in maintaining the reputation of the code as the authoritative document it is, and in upholding the national consensus principle on which this authority has been established.

Our Front Cover

The joint use of telephone poles by telephone and power companies was made less costly by the important agreement reached on the standardization of wood poles (see page 232). The ASA Sectional Committee on Wood Poles undertook its work with widely divergent views as to methods of test, ultimate fiber strengths of various species of timber, dimensions, and other basic features. The joint agreement concluded means dollar-benefits to telephone companies, power companies, railroads, producers of poles, conservation interests and many others. *Cover photo by Holmes I. Mettee, Baltimore, Maryland, for American Telephone and Telegraph Company.*

Opinions expressed by authors in STANDARDIZATION *are not necessarily those of the American Standards Association.*

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Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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ASA

Reg. U. S. Pat. Off.

Ruth E. Mason, Editor Dollie Carpenter, Production Editor

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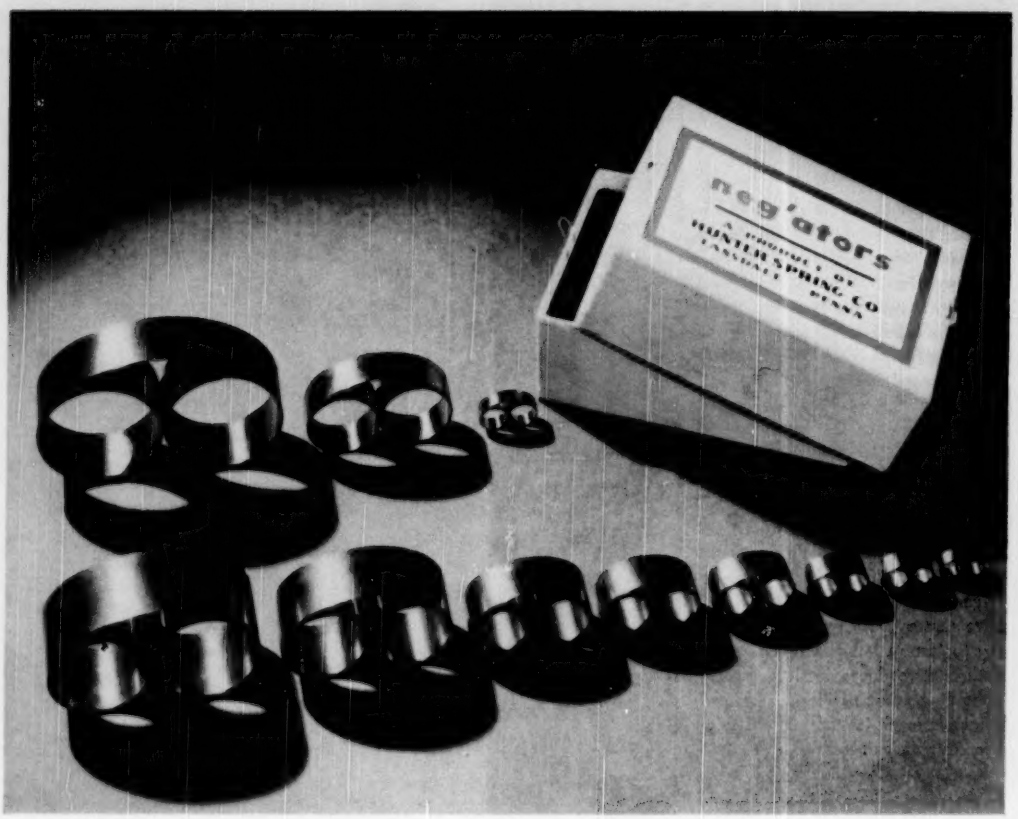


A Standard Experiment in Design

The front row of these unusual looking objects is the medium strong series of "neg'ator clamps." In the second row are three clamps in the heavy duty series. These are included in the standard kit made up by the Hunter Spring Company as stock items. The various series of clamps are designed to step up in size, weight of materials, and clamping strength as provided in American Standard Preferred Numbers, Z17.1-1936. (See table, page 221.) The Hunter products are ordinarily made up to its customers' orders. When planning to manufacture and sell its new neg'ator clamp, the company faced the unfamiliar problem—what standard sizes shall we make? With no sales experience to serve as a guide, it turned to American Standard Z17.1-1936. The results have been eminently satisfying—savings in design and manufacturing costs, standard packaging, and minimum waste in handling sheet stock. Hunter reports it is enthusiastic over its experiment with "preferred numbers."

Clamps with Stylish Sizes

THE many advantages which a manufacturer can gain through knowledge of, and application of, American Standard preferred numbers—especially when a product available in many sizes is being introduced—are handsomely illustrated by the action and experience of the Hunter Spring Company, Lansdale, Pennsylvania.

New Type Clamp

Early this year Hunter introduced the neg'ator clamp, a new type of one-piece gripping device useful to production, maintenance, and research people in both shop and office. The neg'ator clamp is a prestressed strip of flat spring stock which has an inherent tendency to roll up from both ends, and thus exert a clamping force between the two coils. The device is remarkable in that it grips with a constant force independent of the size of the object clamped between the two coils. It is, in effect, an industrial clamp with automatic take-up features.

When Hunter decided to produce and stock such clamps for sale direct to users it faced the common problem of size selection over the most useful ranges of physical dimension and clamping pressure. The 10-series of American Standard preferred numbers was adopted as the solution to the problem.

Designations, Dimensions, Forces

Below is a table showing the catalog designations, significant dimensions, and clamping forces for the 16 standard neg'ator clamps in the high-power and medium-power series. A low-power series is also available, but not stocked in the standard line. The assortment shown in the illustration includes all eight of the high-power series and three of the medium-power series.

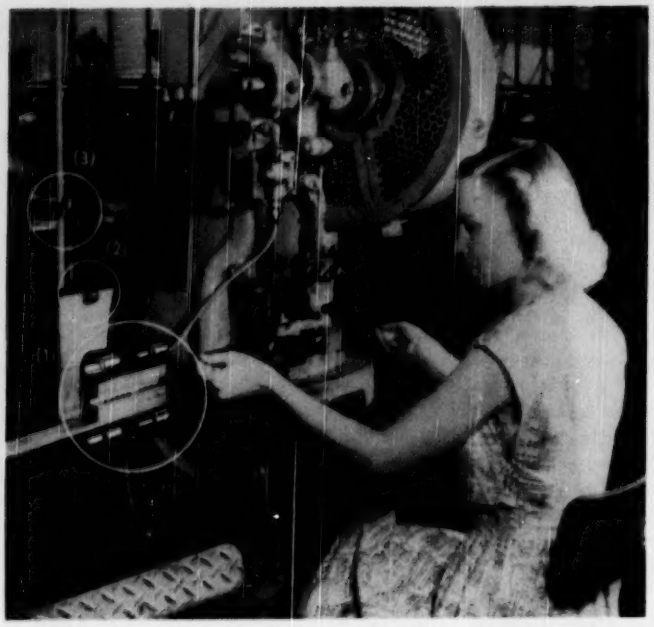
Catalog Designations for Standard Sizes		Physical Dimensions					Life	Clamping Force
		t	b	D	$F_{max.}$	L		P
In Trial Kit	Not In Trial Kit	Stock Thickness (in.)	Stock Width (in.)	Natural Coil Dia. (in.)	Max. Opening Between Coils (in.)	Length of Stock (in.)	Weight per 1000 (lb)	Rated Max. Operating Cycles	(lb)
4H3D		0.004	0.250	0.348	3.56	7.25	2.05	4,000	0.60
5H3E		.005	.312	.435	4.45	9.05	4.00	4,000	.94
6H3F		.006	.375	.522	5.34	10.9	6.92	4,000	1.35
8H3G		.008	.500	.695	7.12	14.5	16.35	4,000	2.40
10H3J		.010	.625	.870	8.9	18.1	32.00	4,000	3.75
12H3K		.012	.750	1.044	10.68	21.7	55.3	4,000	5.40
16H3P		.016	1.000	1.392	14.23	29.0	131	4,000	9.70
20H3R		.020	1.250	1.740	17.80	36.2	256	4,000	15.00
4M3D		.004	.250	.500	5.11	10.45	2.95	10,000	.290
	5M3E	.005	.312	.625	6.40	13.05	5.77	10,000	.454
	6M3F	.006	.375	.750	7.68	15.65	9.97	10,000	.654
	8M3G	.008	.500	1.000	10.23	20.9	23.6	10,000	1.16
10M3J		.010	.625	1.250	12.8	26.1	46.1	10,000	1.815
	12M3K	.012	.750	1.500	15.3	31.3	79.7	10,000	2.61
16M3P		.016	1.000	2.000	20.4	41.8	189	10,000	4.64
	20M3R	.020	1.250	2.500	25.6	52.2	369	10,000	7.26

	High Power	Medium Power
b	$62.5t$	$62.5t$
D	$87t$	$125t$
$F_{max.}$	$890T$	$1280t$
L	$1810t$	$2610t$
P	$3.75t^2 \times 10^4$	$1.815t^2 \times 10^4$

The two physical dimensions arranged in accordance with the American Standard preferred number series are the thickness (t) and the width (b) of the spring stock. Since the 10-series was followed, the percentage increase per step is 25 percent, and the total spread of each series of eight is 400 percent of the smallest (the smallest and the largest holding ratio of 1 to 5). Because the coil diameter (D) bears a fixed linear relationship to the stock thickness (t) in each series $\frac{D}{t} = 87$, high power; $\frac{D}{t} = 125$, medium power), the coil diameter also follows the 10-series of preferred numbers. The same is true of the maximum opening between coils (F_{max}) and the length of stock in each clamp (L).

Benefits of Preferred Numbers

The benefits derived from the use of a preferred number system at Hunter are significant. To the purchasing agent at Hunter, the plan means that he need buy only eight widths and gages of strip steel stock to cover all requirements for all ranges of neg'ator clamp usefulness. To the engineering department, the preferred number series means great simplification of calculations and specifications. To the production department, it means fewer processing tools and heat-treating cycles. To Hunter salesmen, it means complete coverage of possible customer requirements with a minimum number of items. And to the user of neg'ator clamps—particularly those who are in maintenance, plant, or laboratory



Three uses of the Neg'ator clamp are shown here: (1) holding the block on the rail for end-stopping the stock that the girl is feeding to the press; (2) holding the work-tag in easy reading position; and (3) holding a compressed air hose neatly out of the way.

work, and therefore require a full assortment of sizes—the preferred number approach means smaller clamp inventories and fewer "specials."

Catalog Designations

Standardization at Hunter Spring Company, in connection with the introduction of the neg'ator clamp, carries beyond the preferred number system and into the catalog designations for different clamps. Each number or letter in the designation has a meaning. The first number designates material thickness; the first capital letter indicates whether the clamp is in the high-power, or medium-power, or low-power series; the second number discloses the number of complete coils of stock in each clamping coil in the closed position (standardized at three per coil for standard lengths of clamp extension, but practical at any figure up to 10 or 15 turns per coil for special long-extension requirements); and the final capital letter signifies the width of the stock of which the clamp is formed.

It is noteworthy that both series of standard neg'ator clamps—the high-power (*H*) and the medium-power (*M*)—use identical thicknesses and widths of stock. The differences in clamping force are achieved by the amount of prestressing done at the time of manufacture.

The reason for the two series of standard clamps (as well as the third low-power series) lies in the life figures shown in Figure 3. For maximum clamping pressure in the smallest space one must specify a clamp in the high-power series—but should recognize that the high degree of prestressing limits the maximum number of operating cycles before possible fatigue failure to about 4,000 cycles. The medium-power series will safely function to 10,000 cycles at the expense of somewhat larger coil diameters.

Simplification and Standardization

Hunter's use of an American Standard preferred number series in sizing its neg'ator clamps is especially notable in view of the fact that its principal business is a *contract* business—making precision springs, pressed metal parts, and subassemblies to every different buyer's specification. The manufacture of a standardized product is most unusual for this company. In this case, however, the neg'ator strip itself is the complete product, not a component, and the sales, packaging, and merchandising problems cannot be dissociated from the production problem.

To quote P. C. Clarke, Hunter's Assistant General Manager, "Simplification and standardization of a new line of products, through American Standard preferred numbers, should be done at the very outset—on the designer's drawing board—if the full benefits are to be reaped in all departments and if re-designs and retooling are to be avoided. This policy has definitely paid off for us in connection with the neg'ator clamp."

The American Standard for Preferred Numbers, Z17.1-1936, provides series of numbers to be used by the designer or standardizer in preference to other numbers in selecting numerical values of dimensions, weights, capacity ratings, or other performance or quality characteristics. These "preferred numbers" increase in a constant ratio from the smallest to the largest value of a range of requirements. The increases between two consecutive numbers in the 5-, 10-, 20-, and 40- series of Preferred Numbers are about 60, 25, 12 and 6 per cent, respectively.

What Are Your Answers?

Proposed Legislation Poses a Problem for ASA Members

by Cyril Ainsworth[1]

AT the last meeting of Standards Council attention was called to a series of bills which have been introduced into Congress —all directed toward giving new powers and authority to the United States Department of Labor in the field of industrial safety. The Council member who mentioned them believed that these items of legislation were of particular interest to the members of ASA and should therefore be studied by them.

It was entirely fitting and proper that this matter should have been raised in the Council. The legislation is of importance to every member of ASA. The democratic way of life as we know it in this country demands that in so far as possible all proposed legislation should be studied by those concerned and they should make their points of view known to those who represent them in legislative bodies.

The American Standards Association has not attempted to take any position in regard to proposed legislation which might be of importance to its members or to the association. As a federation of many diversified groups having many interests, it would probably be difficult if not impossible for it to obtain a consensus among its members on any body of legislation such as that discussed at the Council meeting. That does not mean, however, that the significance of proposed legislation as it pertains to standardization activities and to the activities of ASA itself should not be called to the attention of members of ASA. Such presentations are important and desirable in order that the members can determine their positions in regard to the legislation.

The proposed legislation discussed in the meeting of Standards Council can be roughly divided into two categories. The first group is designed to provide funds and give authority to the United States Department of Labor to make grants-in-aid to state governmental agencies. These grants would enable them to more effectively pursue their accident prevention activities. The funds so expended would be used for training inspectors, improving administrative techniques, and for research and educational activities. These bills are similar to legislation passed a number of years ago giving funds and duties to the National Institute of Health in the United States Public Health Service for grants-in-aid to state health agencies for the development and improvement of programs in the field of industrial hygiene.

Regulation and Inspection

The second group of bills which have been introduced would, if passed, give regulatory and inspection power to the United States Department of Labor in the field of industrial accident prevention. The specific duties and powers to be granted to the Department differ somewhat from bill to bill but all have the same general purpose. Such powers now rest exclusively in state regulatory bodies. Existing Federal mining laws do give certain code-making and inspection powers to the United States Bureau of Mines although the basic policing authority still rests with state agencies. In other industrial fields, however, no such authority now rests with federal agencies. Industries which have contracts with the various departments of the Federal government to furnish supplies must under the Walsh-Healy Act conduct adequate accident prevention programs. The U.S. Department of Labor enforces this portion of the Act.

This second group of bills which have been put into the legislative hopper of Congress are of particular importance to the members of ASA because of the safety code-making powers which would be conferred on the U.S. Department of Labor. If under these powers the Department chose to adopt American Standard Safety Codes the present cooperative operations under the democratic principles of ASA procedure might continue to be effective. If, however, the Department decided to develop and publish a series of codes under its own procedures, a competitive situation would arise which could easily lead to the discontinuance of the American Standard Safety Code program.

Individual Decisions

As has already been stated, the nature of the action which should be taken in regard to such legislation by members of ASA is an individual decision for each member.

Proposed legislation generally is introduced because of dissatisfaction with the status quo. In the case at hand the basis of the dissatisfaction may be real or fancied, but giving new regulatory and inspection powers to the Federal Government may not be the best way to remove the basis of the dissatisfaction. The function of government is to serve. It should direct only when, in serving the community, it finds conditions which are not in the best interest of the community.

The statement credited for Mr Justice Frankfurter that "Government as a rule undertakes no services or regulations except after private agencies

[1] Technical Director, American Standards Association, Incorporated.

have proved themselves incapable or unwilling," has often been referred to in indicating the worth-whileness of fundamentally sound free-enterprise activities like the national standardization program of which ASA is the focal point. It is a program which is operated in the interest of the community as a whole by industry, labor, consumer, technology, and government. It should be strengthened in every possible way to make unnecessary and unlikely, in so far as standardization is concerned, any action by any group which would be deleterious to the program.

The program of ASA is in being by reason of decisions reached by members and others concerned with the individual projects. Just how much is the membership of the ASA federation doing to insure the success of the program?

By way of examination, a series of questions might be posed whose answers indicate ways and means of supporting "American Standard" activities.

How many members of ASA are basing their purchasing requirements on American Standards, thereby building a market for American Standard goods? How many members are reporting the existence of conflicting standards which make purchasing operations difficult? ASA was organized to eliminate the development of conflicting standards and avoid duplication of effort in developing standards. Industry pays the bill regardless of what procedure is followed. **Why not use the established machinery for coordination of effort which ASA was created to provide and reap the economies resulting therefrom?**

How many Member Bodies and Associate Members of ASA have submitted to ASA, for approval as "American Standard," standards which they have developed? Some have, as is adequately shown by the list of American Standards. Not all standards developed by trade, technical, and governmental groups are suitable candidates for approval as "American Standard." Many are, however, and the fact that they have not been so submitted may indicate to the uninformed that some of the members of ASA are not sure that the American Standard program is all that it has been cracked up to be. Why permit such misunderstandings to exist? Making full use of ASA machinery will bring increased prestige to those organizations whose standards receive the designation "American Standard" because of the increase in breadth of recognition which the standards thereby attain. The ASA function of serving as a national clearinghouse will be strengthened and the community will be benefited through the elimination of confusion and through the economies effected by the development of the standards.

How many members of ASA whose representatives serve as members of safety code drafting committees of state or municipal regulatory bodies have urged the use of the appropriate American Safety Standard as the basis of the proposed regulation? Some have, of course, but there seems to be some evidence that this type of activity supporting American Standards is not being followed even by individuals who had a part in the development of the American Standard involved. The President's Conference on Industrial Safety strongly recommended that uniformity in state regulations be obtained by more extensive use of American Standard Safety Codes. The members of ASA are in the best position to help bring this about through voluntary action.

Industry, labor, government, insurance, and technology are now working cooperatively in a special committee of the Safety Code Correlating Committee of ASA to plan ways and means of making the American Standard Safety Code program more effective. If these same groups will follow the recommendations of this committee and do all in their power to make them effective after they have been approved by the Safety Code Correlating Committee there will be no need for legislation giving regulatory power to a Federal Government agency. Policing one's self is effective.

How many members of ASA receiving invitations to attend public hearings called by state and municipal regulatory authorities for consideration of proposed regulations have taken the trouble to review the proposals to determine if conflicts occur between the regulation and the appropriate American Standard? The experience of regulatory bodies shows that only a limited number of organizations affected by such regulations send representatives to public hearings regardless of whether or not an American Standard is involved. However, American Safety Standards become something more than a group of documents on a five-foot shelf when they are used to guide the development of legal requirements. They become live instruments pointing the way to governmental agencies as to how they can best serve the community when it becomes necessary to establish regulations in the field of accident prevention.

How many members of ASA during the past year have made an effort to induce another company or organization to become a member of ASA for the purpose of making ASA a financially sound and strong organization?

A few have, of course, but what a fine thing it would be if each of the 1800 company members secured a new company member of ASA at the minimum dues of $100 per year. Throughout the fiscal year bills could be paid when presented. Equipment for more efficient and economical staff operations could be obtained, the reserve could be built to adequate proportions in a more reasonable period of time than now contemplated, the much-demanded year book could be published, supplies could be purchased in more economical quantities, and many other matters affecting the efficiency

(Continued on page 239)

How Research Association Aids Industry

by T. E. Veltfort

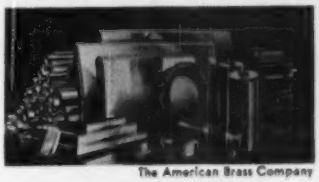
Manager, Copper and Brass Research Association

THE Copper and Brass Research Association is a trade association of the brass mills in this country. Brass mills roll, draw, and form plate, sheet, strip, tube, pipe, rod, wire, and shapes of copper, brass, bronze, and other copper-base alloys containing 40 percent or more of copper. The brass mill industry also includes the forging of copper and its alloys but it does not include production of raw metals, foundries, or production of wire and cable for electrical transmission.

The Association was organized in 1921. Its primary purpose then was to help dispose of the large surplus of copper which had accumulated by the end of World War I and for which there was, at that time, little visible demand. The principal functions of the Association in the initial stages, therefore, were largely promotional and consisted of product advertising, publicity, and research. It did a most effective job in this respect and the large surplus of copper quickly disappeared as the public became better acquainted with the merits of copper and its alloys.

In 1933 the so-called "Copper and Brass Mill Products Association" was formed by the brass mills to consider problems other than those for which the Research Association was formed. It was organized soon after the National Industrial Recovery Act was enacted and so its first responsibility was to establish and administer a Code of Fair Competition under that Act. After the invalidation of the Act in 1935, the Products Association continued to perform the usual functions of a trade association for the brass mill industry, except those having to do with research, promotion, and publicity, which the Copper and Brass Research Association continued to carry on.

At a joint meeting on April 30, 1940 the two associations were merged under the name of the Copper and Brass Research Association and since that time this Association has served to perform all the activities customarily carried on by industrial trade associations.



The American Brass Company

Included in this illustration is practically every form and shape in which copper and copper-base alloys are available. Some of the forms are: sheet, plate, strip, wire, tube, pipe, rod, bar, and special extruded shapes.

So far as these activities can be specifically classified, the Association concerns itself with research, product promotion, publicity, technical problems, statistics, information, industrial relations, traffic, and standards. It has standing committees consisting of properly qualified representatives from the industry which, in frequent meetings, plan its activities in these various fields. The work of these committees is coordinated through an Executive Committee responsible directly to the Board of Directors. The Board consists of a group of executives, representative of the industry as a whole, and, with the advice of legal counsel, it makes the final determination as to the propriety and desirability of all work carried on by the Association. The execution of the work which has been approved as an Association undertaking is the responsibility of the Manager, who is the operating executive of the Association, and his staff.

Besides the classified activities listed above, the Association carries on numerous miscellaneous assignments as occasion requires, handling those specific problems and emergency situations which the brass

Members of the Board of Directors of the Copper & Brass Research Association are:

W. M. Goss, Executive Vice President
Scovill Manufacturing Company
Waterbury, Conn.

Wendell L. Cross, Vice President
The Thinsheet Metals Company
Waterbury, Conn.

J. A. Doucett, Vice President
Revere Copper and Brass Incorporated
New York, N. Y.

J. P. Lally, President
C. G. Hussey & Co.
Pittsburgh, Pa.

H. L. Marion, Vice President
Phelps Dodge Copper Products Corp.
New York, N. Y.

Sherman H. Perry, Vice President
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Waterbury, Conn.

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Bridgeport Brass Company
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J. M. Dumser
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W. W. Sieg, President
Titan Metal Manufacturing Company
Bellefonte, Pa.

T. E. Veltfort, Manager
Copper & Brass Research Association
New York, N. Y.

Bertram B. Caddle, Secretary
Copper & Brass Research Association
New York, N. Y.

Following are the committees actively participating in the Association's work:

Executive Committee

Labor Committee

Publicity Committee

Committee on Standards

Traffic Committee

Technical Committee

Finance and Accounting Committee

Research Committee

mills, like other industries, face from time to time and with respect to which it is proper and lawful to take cooperative action. Because of the importance of its products in the national defense, such cooperative effort on the part of the industry was of particular value in the war emergency.

Generally speaking, the Association has served wherever it has been desirable for the industry to be represented as such in other groups and before government agencies. It has made numerous appearances and presentations at hearings and conferences while acting in that capacity.

Current Research

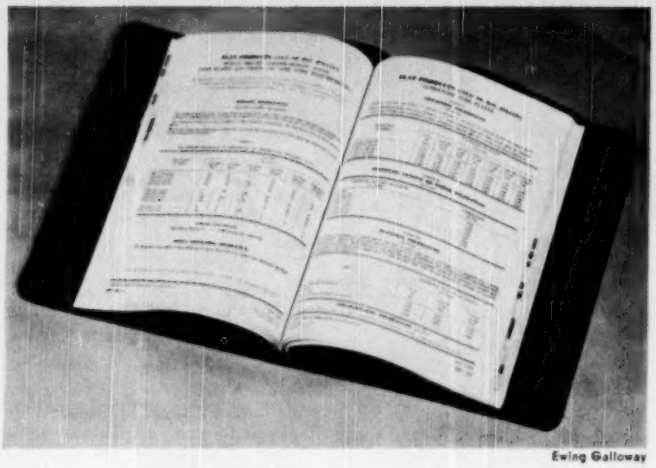
At the present time it is carrying on a number of research projects. One of these, at the University of Illinois, is intended to determine the strength of brazed and welded joints in sheet and plate copper. Also going on at the University of Illinois is an investigation of the behavior of copper tube in vent, waste, and soil lines. In a somewhat different field, the Association is acting as one of the sponsors of a research project on radiant heating being carried on by the American Society of Heating and Ventilating Engineers.

Recently, research completed at Harvard University on the flow of water through wrought copper and cast copper fittings has given new data indicating much higher flow values through wrought fittings than had previously been assumed.

Results of research at the National Bureau of Standards which established the strength of soldered joints in copper tube have not only been published as NBS report BMS 53, but the table of values has also been incorporated in the recently approved American Standard, Cast Brass Solder-Joint Fittings, B16.18-1950.

Manual of Standards

One of the first activities undertaken by the Association was in the field of standards. For nearly 20 years its Committee on Standards has been engaged in an intensive and extensive development of comprehensive standards applicable to brass mill products, using the term "standards" in its broader sense. Thus, it has compiled in a so-called *Manual of Standards* standard dimensional and related tolerances for all of the principal brass mill products, physical and chemical characteristics, and other useful information pertaining to about 40 of the more coramonly used copper-base alloys, terminology applicable to the products of the industry, weights, and other estimating data. The standard tolerances are broadly representative of good mill practice and are indicative of what the purchaser may expect under normal commercial conditions, that is, where particular tolerances are not specified. The *Manual of Standards* has a wide circulation among users of the products of the industry and has served to provide them with the information which it is believed they need for a better practical understanding of brass mill products.



Ewing Galloway

Typical pages, *Standards Manual*, Copper & Brass Research Association.

In the development of these standards the Association, through its representation in such groups as the American Society for Testing Materials, the American Society of Mechanical Engineers, the Society of Automotive Engineers, and others, has assured that the standards are not only representative of good mill practice, but also meet the needs of the users of the material. Every attempt is made by the Association to keep these standards strictly up-to-date and reflect the latest developments in mill practice. Moreover, its work with such groups has also been aimed to eliminate, insofar as practicable, inconsistent and ambiguous requirements in the various specifications covering brass mill products. Through these groups, also, its standards have found their way into the applicable American Standards in accordance with American Standards Association procedure. The Committee on Standards, too, cooperates closely with the various government agencies so that their requirements with respect to brass mill products may be properly coordinated with developments in this field, again to avoid the inconsistencies and confusion which tend to increase cost of production and delay deliveries.

The Association is, of course, a member of the ASA and is represented not only on the Council and in the Conference of Executives of Organization Members but also on sectional committees whose work has any bearing on the products of the industry. Together with other interested groups, it is at present particularly active in one of the ASA sub-

(Continued on page 246)

Steps Toward American-British-Canadian Unification of Bolts and Nuts

IN November 1948 the United States, the United Kingdom, and Canada reached agreement on a common series of Unified Screw Threads published in this country in American Standard B1.1-1949. To be completely interchangeable in use, however, bolts and nuts should not only have the same threads, but also the same widths-across-flats, the dimension that determines the fit between the bolt head or nut (hexagon or square) and the wrench used in holding or turning it.

Mainly to discuss the possibilities of reaching agreement on Unified hexagon sizes, British and Canadian delegations met with ASA Sectional Committee B18 on Dimensional Standardization of Bolts, Nuts, Rivets, Screws, and Similar Fasteners and with other American experts in New York on June 1 and 2, 1950. The British delegation was headed by Sir Anthony Bowlby (British Bolt, Nut, Screw and Rivet Conference; Chairman, British Standards Institution's Committee on Bolts and Nuts); the Canadian delegation jointly by J. G. Morrow (Steel Company of Canada, Ltd; chairman, Canadian Standards Association) and Colonel M. P. Jolley (General Manager, Canadian Acme Screw and Gear, Ltd); and the American group by H. W. Robb, (General Electric Company; Chairman, ASA Sectional Committee B18). Mr Robb presided at the meetings.

Those attending included manufacturers of bolts, nuts, and screws, and users of these products representing various branches of industry and the military services.

The British had decided, Sir Anthony reported, that a Unified series of hexagons should be based in principle on a selection from the American Standard sizes. They had drafted a proposal along these lines. In submitting it, Sir Anthony Bowlby presented some comments on the American system. One of these was that the hexagon of the American Standard Regular 7/16 in. bolt is too small. Its size is $\frac{5}{8}$ in. or 1.43 times the bolt diameter. Investigations of the (British) National Physical Laboratory had indicated that this size should be no smaller than 1.5 times the bolt diameter.

After Sir Anthony Bowlby had presented the British views, the chairman of the conference explained that American Standards for different kinds of fasteners had been developed over a period of many years, for many different applications. In 1947, ASA committee B18 had reviewed all of the American Standards in this field to bring them up-to-date and to expand them into complete product standards. He then called upon chairmen of the subgroups of B18 to explain the development of their product standards in order to present a picture of the reasons that had led to the present dimensions of bolt heads and nuts.

Development of Product Standards

John Davey, (Russell, Burdsall & Ward Bolt & Nut Co), chairman of the Products Subgroup on Bolts, recalled that prior to 1927 bolts were made to what usually was called the "Manufacturers' Standard." This condition had not appeared to be satisfactory and a committee had been organized under the procedure of the ASA to bring order out of chaos. Mr Davey then recalled how the committee had analyzed the function of a bolt and on the basis of this and the requirements of the production process had arrived at widths-across-flats and other dimensions that had been found to be fully adequate.

F. G. Kaufman, (Cleveland Cap Screw Co) chairman of the Product Subgroup on Cap Screws, stated that an effort had been made to establish a general-purpose bolt to replace cap screws and bolts. The subgroup had arrived at the conclusion that separate standards for the two products were justified, principally because of the difference in application, the bolt being used with a nut, and the cap screw being used in a tapped hole.

W. L. Barth, (General Motors Corp) chairman of the Products Subgroup on Automotive Hexagon Head Bolts, said that this type of bolt was an outgrowth of the hexagon head cap screw used in the early days of the automotive industry. Detailed product standards had been developed through the years by the automotive industry in cooperation with its suppliers and these standards, with minor changes and refinements, had been incorporated into the recently revised American Standard. Mr Barth stated that the automotive industry would continue to use its present standards but that if certain sizes were designated as "Unified," this might lead to their increased use and this trend might be accelerated in the case of an emergency.

George S. Case, (Lamson & Sessions Co) chairman of the Product Subgroup on Nuts, outlined the background of the manufacture of bolts and nuts in the U. S. during the last century. He pointed out that until 1910 there had been a lack of standards. At that time the SAE had developed a series of light nuts which had received general acceptance in the automotive industry. The American Standard Regular series was in general use and had proved to be satisfactory. There was a need for several series if danger of oversimplification were to be avoided.

Subsequently Mr R. A. Frye (Westinghouse Electric Corp) discussed the present situation from the viewpoint of the general user of bolts

(*Continued on page* 242)

ISO Council Agrees on Projects, Procedures

by Vice Admiral G. F. Hussey, Jr

Managing Director, American Standards Association; U. S. delegate to the Council of the International Organization for Standardization

WHEN the Council of the International Organization for Standardization met at Geneva, July 3-7 this year, it marked the third anniversary of the official start of work by this postwar association. Of the ten countries whose national standards associations are Council members, nine were represented, with Russia the only absentee. Delegates from Australia, Belgium, France, India, Mexico, The Netherlands, Norway, United Kingdom, and USA all took part in five days of hard work.

The Council was pleased to welcome two new members that joined the Organization during the past year—the national standards associations of Uruguay and Yugoslavia. By vote at the meeting, it admitted a third member — Rumania. These bring the ISO membership to 30.

Changes in the membership of the Council itself had taken place since the last meeting, and The Netherlands was represented for the first time at a Council meeting replacing Switzerland.

Encouraging progress in the technical committee program was noted in the reports received.

Fifty-nine of the 70 ISO technical committees circulated reports of their activity during 1949. Many reported that proposals are being considered by participating members. Others have completed analysis of their scope of work. Some of the most important of those now considering proposals for unification of national standards include: screw threads, ISO/TC 1; automobiles, ISO/TC 22; splined shafts, ISO/TC 32; machine tools, ISO/TC 39; photography, ISO/TC 42; lac, ISO/TC 50; gas cylinders, ISO/TC 58; mica, ISO/TC 56; and documentation, ISO/TC 46. Adoption of the "S" and "Z" twist designations for yarns is the first international proposal to be circulated to all ISO members for approval as an ISO Recommendation. The United States has already registered its approval.

Three new technical committees were set up during 1949—Definitions of Engines, ISO/TC 70; Concrete and Reinforced Concrete, ISO/TC 71; and Textile Machinery, ISO/TC 72.

At the Council meeting, proposals for additional technical work were considered.

A project for pump testing, particularly in the field of vertical deep well pumps, was held in abeyance pending a decision on the part of the United States as to whether it could participate and accept the secretariat. A proposal for the study of graphical symbols was approved and assigned to the Swiss member-body which already holds the secretariat of a related technical committee, ISO/TC 10 — Drawings (General Principles). A proposal for a study of marks indicating conformity to national standards was approved, and the secretariat assigned to the French member-body. A proposal for the study of hydraulic binders was approved with the secretariat assigned to the Belgian member-body with the French member-body ready to undertake it if the Belgian group cannot.

The following groups of projects were approved for study:

Artificial portland cements
Blast-furnace slag cements
Natural cements
Quick lime and hydrated lime
Plasters

A recommendation from ISO/TC 48 on Laboratory Glassware that a special committee be set up to consider the question of blood transfusion apparatus was acted on favorably. This step was taken because of the humanitarian aspects of the proposal although the formalities normally required for the establishment of new projects have not yet been completed. It was indicated that the Norwegian member-body might be in a position to accept the secretariat.

Action on several projects awaited decisions by the United States.

The United States announced that preliminary steps had been taken toward participation in the work of, and acceptance of, the secretariat for the following ISO Technical Committees:

28—Petroleum Products
61—Plastics
66—Determination of Viscosity

(*Continued on page 240*)

The Board of Directors of the American Standards Association voted at its June meeting to invite the International Organization for Standardization to hold its General Assembly for 1952 in New York. The invitation was delivered to the Council and accepted unanimously. The period proposed—the second and third weeks in June 1952—will be particularly convenient for both American and foreign delegates since it will come immediately before the fiftieth anniversary celebration of the American Society for Testing Materials. Many of the ASTM's test methods have world-wide acceptance.

(Left to right) M. Reichert (Belgium), Treasurer of ISO; Lal C. Verman (India), Vice-President; A. Cequot (France), President; and H. St. Leger, General Secretary.

(Left to right) Miss Elizabeth Weeks (U.S., secretary to Admiral Hussey); Admiral G. F. Hussey (U.S.); K. Heiberg (Norway); F. Donker Duyvis (Netherlands).

(Foreground, left to right) P. Good and Miss G. Harrison (of the United Kingdom); J. Birlé and General P. Salmon (France). (Back row, left to right) Miss Weeks and Admiral Hussey (U.S.); K. Heiberg (Norway); F. Donker Duyvis (Netherlands); and I. Aguerrebere (Mexico).

(Left to right) Dr Lal C. Verman (India), Vice-President of ISO; A. Cequot (France), ISO President; H. St. Leger, General Secretary ISO; W. Rambal, engineer on ISO staff; R. Maréchal, Administrative Secretary ISO; and (behind) Mrs J. Liégout, ISO staff.

(Left to right, back row) Admiral G. F. Hussey, Jr. (U.S.); I. Aguerrebere (Mexico); F. Donker Duyvis (Netherlands); General P. Salmon (France); K. Heiberg (Norway); J. Birlé (France); P. Good (United Kingdom); R. Maréchal, Administrative Secretary ISO. (Center row) R. Tavernier (France); Miss E. Weeks (U.S.); Miss Harle, interpreter; H. St. Leger, General Secretary ISO. (Seated) M. Reichert (Belgium), ISO Treasurer; Dr Lal C. Verman (India), Vice-President ISO; A. Cequot (France), President ISO; J. E. Cummins (Australia); Miss G. Harrison (United Kingdom).

"Vindictive" Machines *vs* Workmen's Safety

by Alexander C. Wall

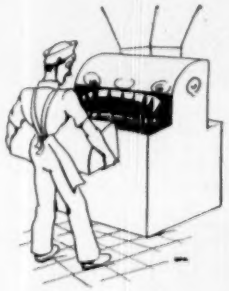
EACH year sees a more widespread use of machinery in large and small bakeries. This increased use of machinery means both an opportunity and a threat for safety. More machinery brings a lower activity of workers and also lower worker density. Both of these contribute to the opportunity to increase safety. On the other hand, as the horsepower per worker rises, the threat of greater injury per accident definitely increases.

The manufacturers of automatic machinery today are very safety-conscious people. In designing their machinery, they keep asking constantly, "Is this mechanism safe?" Strangely enough, this simple question is frequently difficult to answer. To a bridge designer, the question of safety involves two basic elements; first, is the bridge strong enough so that it won't fall down and, second, are the guard rails *reasonably* high and secure. The bridge designer assumes that people will use his bridge only for crossing the stream. He does not try to make his bridge safe for people determined to harm themselves.

The machinery designer can easily make his machine so it will not explode, fly apart, or fall down, as the bridge designer does. However, people do not, unfortunately, always regard the "guard rails" of a machine as they do the guard rails of a bridge. Thus, the machine designer must try to imagine how careless or inattentive people may become around the machine. There is no absolute measure. While it is quite possible to construct a machine so that it is virtually impossible to be hurt by it, this makes the machine so inconvenient to use that operators will find ways to remove the safeguards. This then results in a machine frequently more dangerous than one with less "safety." The machine designer tries, therefore, to strike a reasonable compromise by guarding against normal, inadvertent touching of the machine. He then relies on education to prevent injury in machine operation.

The subject of machine safety can be highlighted by a bit of fantasy. Machines should always be looked upon as possessing a resentful and vindictive nature. They are forced by man to work for him for long hours. They resent this and are always watching for an opportunity to catch him unawares. They are never sorry about their misdeeds and, in the twinkling of an eye, will kick a man to death when he is down. Not only are machines resentful and vindictive, but they also have tremendous physical vigor to carry out their cruel ideas.

Compared to one manpower, practically all bakery machines have fantastic ability to exert maiming forces.



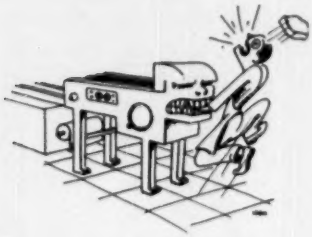
A full-grown man, working as hard as he can on a bicycle driving a generator, does well to keep a 100-watt bulb lighted for a few moments. This is about 1/10 horsepower. Compare this to a breadwrapper powered by a one horsepower motor which, when challenged, can easily put out 2½ horsepower; so when a man challenges this machine, his split-second timing must be as good as precision cams, or the odds are 25:1 against him.

There are four general ways in which machines get an opportunity to be vindictive:

As engineer with the American Machine & Foundry Company, Mr Wall knows his machines intimately, and as a member of a subcommittee of the ASA Z50 Sectional Committee on Safety in the Bakery Industry, he is well acquainted with the work that has been done to standardize safety in the design and operation of those machines in bakeries. Here he gives his analysis of how machine "vindictiveness" can be overcome by applying the principles of safe design and operation. This is one of a series of articles being circulated by the Z50 committee sponsored by the American Society of Bakery Engineers to bring about a wider acceptance and understanding of the principles that should be followed for greater safety in the industry.

1) People deliberately put their hands, heads, or other parts of their body too close to moving mechanisms.
2) People slip, trip, or lose their balance near a machine and inadvertently touch it.
3) Guards are removed from a machine, and people passing by are caught by moving parts.
4) A machine is started by one man while another is working on it.

Let us look at each of these sources of accidents and outline proper protective measures.



1) *Prevention of Deliberate Entanglement*

Education is about the only way to prevent accidents caused by deliberately entering a machine. The danger of machines should be constantly dramatized, and rules for safety reiterated.

An example of the deliberate entanglement type of accident can be seen in the breadwrapper. Operators are tempted to try to snatch out a small piece of cripple between table strokes, or to grab a misplaced loaf from the infeed as it enters the machine. This requires being quicker than the machine, which a man can be sometimes. Eventually, however, a caught sleeve or a slip of the foot in a crucial hundredth of a second gives the machine the chance it is always waiting for, to remove a couple of fingers or a hand. Always stop a machine before putting hands inside.

2) *Prevention of Inadvertent Entanglement*

Bakery floors are frequently slippery, not only from baking ingredients but also from crumbs. All of the rules for safety against falls through good housekeeping apply with double emphasis where moving machinery is involved. When a man slips, he instinctively reaches for support. If the only object within reach of his blindly grasping hand is the open hatch of a mixer, the turning rolls of a sheeter, or the moving head of a divider, the injury of a fall is likely to be inconsequential compared to the loss of a hand, arm or even death.

Each machine in the bakery should be examined to see if good footing and clear aisle space is provided in its vicinity. Many excellent high traction floor coverings are available. Where danger exists,

(1) Keep floors clean
(2) Provide a floor surface with high traction.

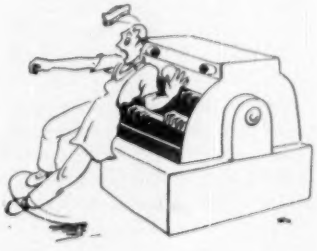
3) *Removal of Guards*

The Bakery Industry is one of the most flagrant "guard removers" of all mechanical industries. This is attributable to several causes. In an effort to make machines sanitary, machine designers have in the past covered their machines with smooth covers, improperly called guards. These frequently gave machines the appearance of sanitation. In addition, the copious use of covers frequently combined true guards with closures preventing proper operation and maintenance of the machines. Thus, to properly use the machine, the operator had to continually open and close these covers. Being human, he eventually removed the cover for convenience. In so doing, he also removed the guard.

Fortunately, this trend in machine design is being reversed by forwarding-looking machine manufacturers. Guards are put on as guards only.

Nonetheless, the removal of true guards should be prevented. Wherever a man can become entangled with machinery merely in passing by or inadevertently resting his hand or foot, a definite guard should be provided.

Look at all your bakery machinery, where covers have been removed for efficient machine use, and put a smaller, simple guard over the dangerous mechanism portion.



4) *Machine Starting*

As bakeries become more and more automatic, the number of interconnected machines increases. Frequently, multiple control stations are necessary. Thus, the danger of starting at one location, when men are working at another, becomes increasingly important.

Three general rules will help to keep accidents down due to this cause:

(1) Educate personnel constantly to check by looking and calling before starting any machine.
(2) Wherever possible, use only one start station for a machine and provide plenty of stop stations which can quickly and easily be reached in an emergency.
(3) Provide a lever operated type switch, which will disconnect all power to a machine. Provide a sign saying:—

"CAUTION! MAN WORKING ON MACHINE"

Arrange the switch so that the sign can be hung from the operating lever.

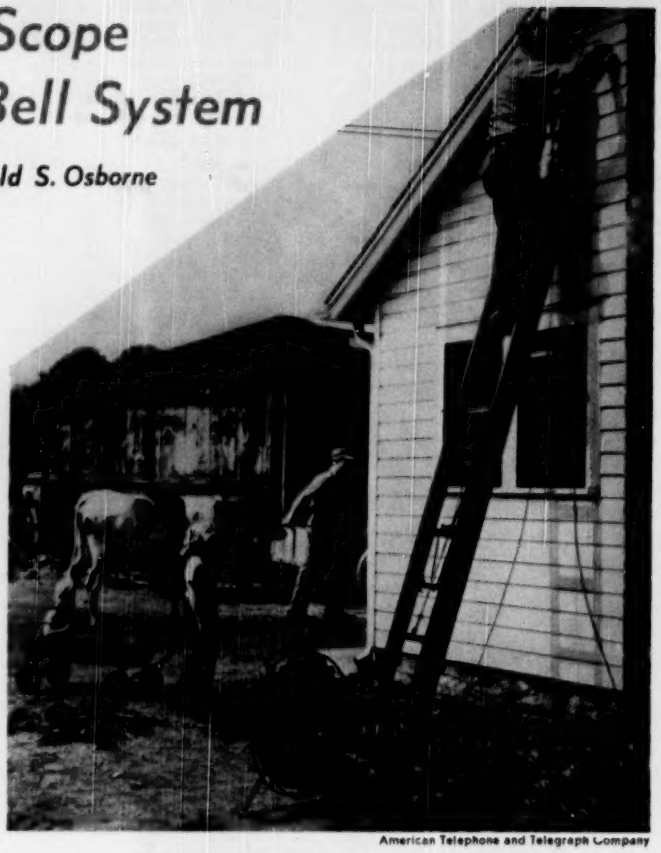
To summarize:—

1) Prevent deliberate entanglement by education. The cardinal rule—Always stop a machine before putting hands inside.
2) Prevent inadvertent entanglement by education, good housekeeping and high traction floors. The cardinal rule—Always watch your step and hands near a running machine.
3) Guards. Remove if you must, covers that interfere with efficient operation, but put guards over chains, belts, gears and any dangerous mechanism.
4) Machine Starting. Accidents due to starting can be prevented by education, single-start station for any machine group and signs that a man can leave on the machine or switches to protect himself.

Safety in bakery operation has been standardized by the American Standards Association Safety Code for Bakery Equipment. This is a guide both for bakery machinery manufacturers and bakery operators. Copies of the ASA Safety Code for Bakery Equipment, Z50.1-1947 are available from the American Standards Association, 70 East 45th Street, New York 17, N. Y. This code gives minimum equipment requirements and safety practices. This article has attempted to dramatize the machine aspects of bakery safety.

ASA's Broad Scope Helps Bell System

by Harold S. Osborne



American Telephone and Telegraph Company

Bell System employees who climb ladders are the safer for the standards of manufacture, care, and use, established through the work of ASA committees.

THERE are numerous large fields of work within which standards are important to the telephone companies, and also to a wide range of other industrial and operating organizations.

A considerable number of the ASA standards projects in which the Bell System is actively cooperating at present refer to standards for materials. These include standards for copper wire, for electric lamps, for storage batteries, for electrical measuring instruments and electron tubes, for paints, and for lubricants. Many relate to standards for materials important in the manufacture of telephone equipment. They include standards for electrical insulating materials, magnet wire, wire and sheet metal gages, petroleum products and lubricants. They also include standards for iron and steel, for brass, for zinc, for bolts and washers, and other materials. Thirty-three of the current projects may be classed as of this general nature.

Another group of projects relates to safety codes of importance in telephone operation and manufacture, as well as in the operations of other organizations. An important illustration of this is the National Electrical Safety Code, specifying forms of electrical construction which are considered safe for both employees and the public. One part of this voluminous code sets down standards of design and construction for pole lines jointly used by power companies and telephone companies. This code is not only generally used by industry as its guide but is also used in many states as the basis for governmental regulation of the construction of electrical lines.

Other projects of this general nature include the safety code for the construction, care, and use of ladders, the safety code for industrial power trucks, the code for protection against lightning, the National Electrical Code (used by fire underwriters as the basis for the approval of electrical installations), standards for the inspection of motor vehicles, the safety code for industrial sanitation, specifications for accident prevention signs, and standards for accident statistics. This last project is for the standardization of the basis used in reporting accident statistics, so that reports from various industries may be more directly comparable than heretofore. This group also includes standards for linemen's rubber protective equipment, protective occupational clothing and footwear, and allowable concentrations of toxic dusts and gases. Thirteen of the projects in which telephone people are now cooperating are of this general character.

Still other standards relate to manufacturing processes and equipment. Illustrations of this are standardization and unification of screw threads, standards for the zinc coating of iron and steel, standard tests of textiles, classification of materials for tools, fixtures and gages, and standards for industrial sanitation. Sixteen of the projects are of this general class.

A large group of standards is concerned with building materials and equipment. This includes requirements for structural steel, for masonry, for plastering, for plumbing, light and ventilation, for coordination of the dimensions of building materials, and for standards for pipe

threads. Bell System representatives are cooperating in seven of these projects.

An example of Bell System participation in a specific standard is our interest in the ASA project covering the construction, care, and use of ladders. Ladders are used for many kinds of work both within and outside the Bell System, and the hazards incident to their use are common to all users. Ladder accidents have occurred which are traceable to faulty construction, faulty care, faulty use. With the objective of reducing these accidents, the United States Bureau of Labor Statistics published for trial in 1923 a tentative standard covering the construction, care, and use of ladders. Pooling the experience of users and manufacturers, a committee under the chairmanship of H. D. Bender, of the Bell Telephone Laboratories, revised and reissued this standard as a full American Standard in 1935 and again in 1948. In this work, careful consideration was given to minimum requirements for ladder strength and to standard dimensions for lumber stock of woods suitable for use in the construction of wood ladders. Thus there were brought together representatives of the ladder-producing and the ladder-using industries in the formulation of a single standard acceptable to all interests.

In addition to being the basis for the construction, care, and use of wood ladders used by Bell System companies, this American Standard is now recognized by the users and manufacturers of ladders generally, and in those states in which Safety or Labor Departments have issued regulations in this field. Work is now under way to establish corresponding standards for ladders made of light metals such as aluminum and magnesium alloys.

Another active standardization project is one on Acoustical Measurements and Terminology. Organized in 1932 at the request of the Acoustical Society of America, this project was inactive during the war, but has recently been reorganized in line with technological developments. The committee is now engaged in formulating a number of standards of terms and definitions used in connection with sound reproduction and recording and the levels of noise which may interfere with satisfactory performance.

The recognition of common terms in handling matters such as the transmission of programs over telephone wires is, of course, of value in our relations with broadcasters, wired music systems, and others. In addition, the committee has under way standards for audiometers for diagnostic purposes by doctors and to assist in determining deficiencies in hearing.

Bell System participation in this work has largely been carried out by the groups in New York. The American Telephone and Telegraph Company and the Western Electric Company have for years made payments to the Association on behalf of the Bell System companies as a group. These payments cover both company membership and the Bell System share of member body membership by the Telephone Group.

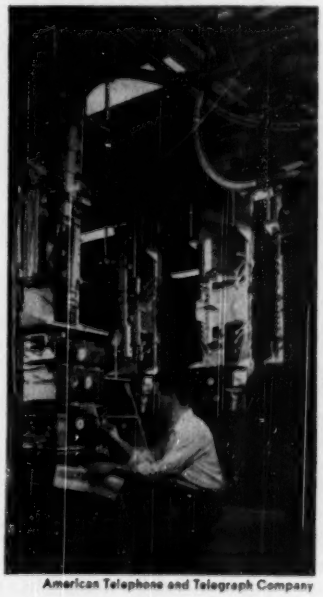
Depending upon the nature of the work involved in each case, Bell System representation in the Sectional Committees and other committees formulating standards is by members of the staff of the Western Electric Company, the Bell Telephone Laboratories, or the General Department of the American Telephone and Telegraph Company. Thanks to the Bell System form of organization, all of the Bell System Companies are thus represented in this work by a minimum number of representatives, and by men particularly qualified by their experience and responsibilities to contribute to the subject matter involved in each case.

The American Standards Association has many problems.

However, the Association is well organized to meet its responsibilities and to expand its activities as increasing financial support makes this possible. It has established its place as an important tool in the rapidly developing American economy. The Bell System, which from the start has participated actively in its work and its support, can expect a continuance of the benefits which have come from the stimulation and coordination by ASA of standards in many fields which have nation-wide acceptance.

This article is condensed from Dr Osborne's "Bell System Participation in the Work of the ASA," Bell Telephone Magazine, Winter 1949-50. Dr Osborne points out that "representatives of the Bell System and of the independent telephone companies are taking part in 80 projects of the American Standards Association of value to this industry."

Dr Osborne is chief engineer of the American Telephone and Telegraph Company, and vice-president of the American Standards Association.



American Telephone and Telegraph Company

Parts and materials for this television program relay apparatus are affected by American Standards.

Mixing or Matching

BETTER harmony of color and less refinishing cost will be industry's gain from use of the new American Standard Grays for Industrial Apparatus and Equipment, Z55.1-1950. This standard, just completed by a sectional committee working under the procedure of the American Standards Association was developed for use whenever a company plans to finish its apparatus and equipment in gray and wants to choose harmonizing or matching colors. It is expected that the four standard grays will not only facilitate specifications of gray finishes but will simplify the number of finishes specified, and thus permit more economical manufacture and use of finishing material. Undoubtedly the standard grays will be more readily available in stock and thus will make it possible for companies to carry lower inventories.

Four standard grays have been established: light gray, medium light gray, medium dark gray, and dark gray. For popular identification, the numbers 61, 49, 33, and 24 have been assigned. These numbers correspond to the first two figures of the "value" in the Munsell color system notation, 61 being the lightest or the highest "value."[1] Although the fundamental standardization on specification and designation of color (American War Standard Z44-1942) is based upon spectrophotometric data, Munsell notations have been provided for industrial specification.

[1] The Munsell system provides decimal notations for the identification of color. As defined by the Munsell Company, "value" is "the lightness or darkness of any color. In terms of value we describe all colors as dark, middle, or light."

General Electric Company

Munsell notations for identifying color are made with a spectrophotometer.

In addition to the Munsell notation, references to gloss and texture are required to specify the appearance of a finish. Six classes of gloss are listed in this new American Standard to specify the appearance of the gray finishes. Texture is not defined in the standard at this time.

Manufacturers have always painted their products for protection and for appearance. However, colors have often been selected to suit individual whims or to match colors that happened to be on hand. Not much has been known by the average user about color, and there has been little appreciation of its importance.

As might be expected, the number of finishes has kept increasing in most companies because of the number of selections made by them, by other manufacturers, and by their customers. This has necessitated repeated company simplification programs which have usually failed because of the wide scope of the problem and because of the lack not only of standards but also of acceptable terminology to identify colors.

Too Many Finishes

One large manufacturer undertook a very extensive standardization and simplification program in 1936 only to find a few years later that the number of finishes exceeded the number in use before the standardization was attempted. The present standardization of gray finishes revealed that some companies had in excess of a hundred gray finishes in current use—a fact that contributed to the initiation of this project.

In analyzing reasons for these failures of company standardizing programs, it was found that identification was one of the difficulties.

H. W. Robb, Standards Engineer, Executive Department, General Electric Company, is chairman of sectional committee Z55 on Colors for Industrial Apparatus and Equipment, which developed the American Standard for Gray Finishes discussed in this article. Mr Robb has for many years taken an active part in the ASA work. He has been chairman of the ASA Company Member Conference, is chairman of Sectional Committee B18 on Bolts, Nuts, Screws, and Rivets which recently held a conference under his leadership with the British and Canadians. He is also a member of the Executive Committee of the ASA Mechanical Standards Committee.

"Standard" Grays Now Available

by H. W. Robb

Standards Division, Executive Department, General Electric Company

Heretofore, colors have been identified by various names, by paint numbers, or by color specimens prepared by various organizations or companies. Many companies have established elaborate systems for the preparation, distribution, and maintenance of color specimens. While color specimens continue to have a use, there are disadvantages in the sole use of color specimens even where their use is confined to a single plant; the disadvantages multiply where a number of plants are involved or where there is need for intercompany purchasing. To be effective, the sole use of specimens depends upon the establishment of master specimens and frequent comparison of all working specimens. Commonplace disadvantages experienced in the past in the use of color specimens as the sole identification for finishing of apparatus have included the numerous colors in use, lack of coordination between companies, variation in master specimens with different formulation and aging, variation in working specimens due to tolerances, materials, handling, aging, and too infrequent comparison, or lack of comparison, with the master specimens. In such instances also, color specimens must be furnished on outside purchases.

Systems of color names and paint numbers for specifying colors likewise have obvious disadvantages.

With the trend to assembly of purchased parts and with large-scale subcontracting, the problem of color specifications has assumed increased importance. In the war effort the need for suitable specification became acute.

The new American Standard will improve this situation, first by standardization of four standard grays for general use; second, by establishing definite specifications for the preparation and maintenance of color specimens within close tolerances; and third, by adoption of a standard method for written specification of appearance—color, gloss, and texture. As far as color is concerned, it is now possible to specify "American Standard No. 61 Gray" or to specify its Munsell notation 8.3G 6.10/0.54 without furnishing a color specimen. It might also be noted that the National Machine Tool Builders Association's 7B Gray is identical with the American Standard 49 Medium Light Gray.

The selection of Munsell notations for the identification of opaque coatings, such as paint, resulted from previous experience in attempts to standardize colors and finishes. The 1936 standardization effort of the company previously mentioned was undertaken partly because it was felt that the spectrophotometer at last provided the means for standardization. Spectrophotometric curves were made for the various "standard" finishes, and information was presented in terms of the basic specification. However, it was found that this represented the language of a technician, incomprehensible to the ordinary designer who in many companies selects colors. It became evident that a color system that could be understood and visualized by the layman was needed.

Copies of the American Standard Gray Finishes for Industrial Apparatus and Equipment, Z55.1-1950, can be obtained from the American Standards Association at 35 cents each. Sets of color chips are also available at $2.25. Standard and color chips can be purchased together at $2.60.

An investigation revealed the existence of the Munsell color system which appeared to satisfy these requirements, at least for coated surfaces. It was also found that a considerable amount of work had been done by the National Bureau of Standards, the Massachusetts Institute of Technology, and perhaps others, in calibrating the colors of the Munsell Book of Colors in terms of basic specifications obtainable from spectrophotometric data. This linking of the two methods of identification appeared to provide the desired solution—basic standardization by the use of the spectrophotometer and popular identification by Munsell notations. The activity resulting in the American War Standard on Specification and Description of Color, Z44-1942, was suggested not only to establish these methods as standard, but to promote the use of Munsell notations for the specification of color of finishes in the war effort. The nonprofit Munsell Color Company was changed to a Color Foundation to facilitate this use of the notations and the Munsell Book of Color, the Textile Color Cards, and other color standards bearing Munsell notations were made available for reference. The American Standard on gray finishes, Z55.1-1950, implements the American War Standard, Z44-1942, in this respect, at least for opaque coatings.

Practical Color

With suitable methods of identification available, color standardization became practical. The activity on grays started with a request by the Navy for standardization during the war. The companies that were brought together by this request later found that they were carrying on parallel investigations of other gray finishes in current use. Combining their ideas, a paper was presented in the July 1945 issue of INDUSTRIAL STANDARDIZATION under the title "Can Industrial Color Finishes Be Effectively Standardized?"[2] The in-

[2] Hadley, D. L. and Ryder, C. B. Can Industrial Color Finishes Be Effectively Standardized? INDUSTRIAL STANDARDIZATION, July 1945, Vol. 16, No. 7, p 151.

(*Continued on page* 239)

Keep Cool *Safely*

DURING the past eleven years, the use of mechanical refrigeration has taken a jump in providing frozen foods and vegetables for farm kitchens and city homes, air conditioning for places of amusement and public assembly, ice for skating rinks, and all types of refrigeration for industry generally. The rapid development of mechanical refrigeration during this recent period rivals its original revolutionary displacement of its immediate ancestor—natural ice.

It was eleven years ago, in 1939, that the last edition of the American Standard Safety Code for Mechanical Refrigeration was brought up to date with experience at that time. This year, an up-to-date edition has been completed that takes into consideration not only the new applications of mechanical refrigeration but also improvements in refrigeration techniques that have taken place during the 11 years since 1939.

Known intimately as the "ASA B9 Safety Code," the standard has become widely used since its first edition was completed in 1930. It is intended to insure that mechanical refrigeration units are designed, installed, and used so that building occupants will be assured of protection against dangers from either flammability or toxicity of the refrigerant.

Mechanical refrigeration usually employs a fluid in a closed circuit to transfer heat from one place to another. The liquid absorbs heat as it changes from the liquid state to the vapor state. This change usually takes place in an evaporator or cooling unit. The vapor is then drawn to the refrigerating machine where it is changed to the liquid state as the heat is withdrawn from it.

Refrigerating systems in general use operate at pressures up to about 250 pounds per square inch and require a definite quantity of refrigerant to be circulated in them for best operation. Leaks in the refrigerating system will not only stop the refrigerating cycle but may imperil health or life, depending upon the nature of the refrigerants used and their concentration.

Any mechanical refrigeration unit that makes use of a fluid which is vaporized and is normally liquefied in its refrigerating cycle can be safely designed, constructed, installed, operated, and properly inspected by following the recommendations of this standard. It does not apply to the use of water or air as a refrigerant, however.*

Intended for use as a model code for adoption by state and municipal agencies, the requirements apply only to certain occupancy classifications listed. The requirements differ for the various types of refrigerants as the need differs for the various occupancies.

Residential occupancies are defined as those which provide sleeping accommodations for more than two families. This includes club houses, dormitories, multiple story apartments, studios, hotels, and tenements. Commercial and industrial occupancies are defined separately in the standard. Public assembly occupancies include places where people congregate, such as armories, assembly rooms, auditoriums, broadcasting studios, churches, dance halls, department stores, and exhibition halls. Special provisions are included for institutional occupancies—hospitals, asylums, sanitariums, jails, and similar places, where people are confined for care or treatment, and where the danger may therefore be intensified because of difficulty in escaping from it.

(*Continued on page* 238)

Photo by Edward Ratcliffe

The Rockefeller Plaza outdoor skating pond in New York City.

* The refrigerants for which provisions are included in this code are classified in three groups according to their flammable or toxic characteristics. Different requirements are provided for each group:

Group 1

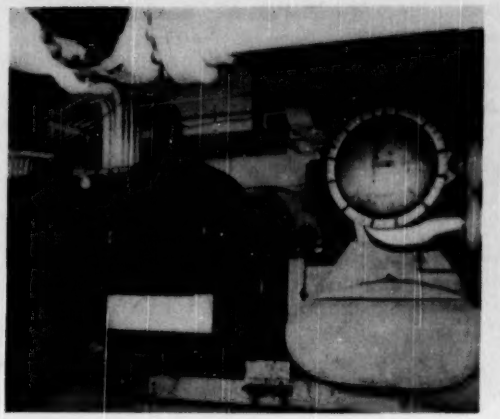
Carbon dioxide
Dichlorodifluoromethane (Freon-12)
Dichloromethane (Carrene No. 1; Methylene chloride)
Dichloromonofluormethane (Freon-21)
Dichlorotetrafluoroethane (Freon-114)
Monochlorodifluoromethane (Freon-22)
Trichloromonofluoromethane (Freon-11; Carrene No. 2)
Trichlorotrifluoroethane (Freon-113)

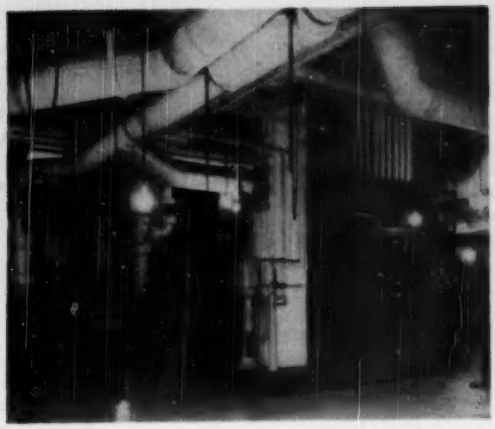
Group 2

Ammonia
Dichloroethylene
Ethyl chloride
Methyl chloride
Methyl formate
Sulphur dioxide

Group 3

Butane
Ethane
Ethylene
Isobutane
Propane

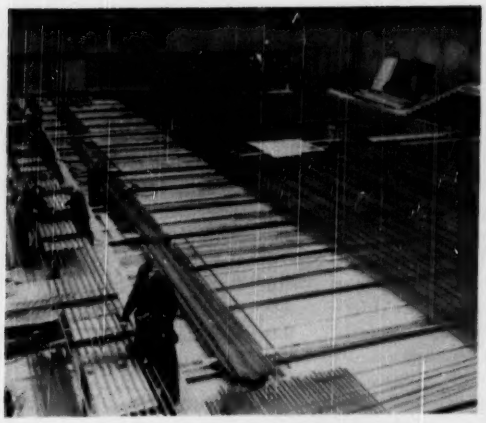


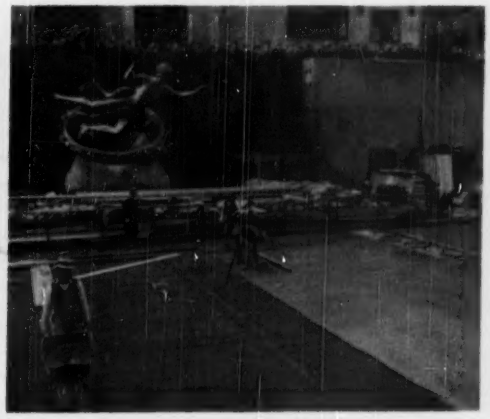


The new American Standard Safety Code for Mechanical Refrigeration, B9.1-1950, covers the air conditioning of public buildings and the safety features of the mechanical refrigeration for public skating rinks. These photos of tourist-popular Rockefeller Center in New York City picture some of the refrigeration equipment covered in the code. Photo at upper left shows the end view of one of the two refrigerating machines in the sub-basement machine room of the RCA Building in Rockefeller Center. The huge machine weighs 32 tons and supplies the same cooling effect in 24 hours as 900 tons of melting ice. The circular "tank" on top is the condenser. Connected with it are the two pipes which circulate water through the cooling towers on the roof of 9 Rockefeller Plaza. Directly beneath the condenser is the cooling unit. Behind the engineer, who is reading a gage, is the 1000-hp motor which drives the compressor, shown in the rear. The machine is controlled from the panel at the left.

Pictured at upper right is another view of the Rockefeller Center air conditioning refrigeration plant. This maze of machines and pipes is only a small part of the equipment which provides air conditioning to tenants in the RCA Building. More than three thousand tons of refrigeration can be produced daily.

The two pictures below show different phases of the construction of the outdoor skating pond in Rockefeller Plaza, famous New York landmark. More than five miles of pipe, carrying a brine solution, are installed beneath a terrazzo floor upon which the ice is made. Huge compressors supply refrigeration to the brine solution which circulates through the pipes at a temperature from zero to 15 degrees Fahrenheit. The brine cools the concrete terrazzo and when water is sprayed on the cold surface it freezes in less than half an hour, creating ice which is maintained at a thickness of approximately one inch. This is an indirect system as provided for in the standard for skating rinks, considered as places of public assembly.





Refrigeration

(*Continued from page 236*)

The B9 Safety Code was originally developed in 1930, and has been revised in 1933, 1939, and now in 1950. Faced with the increasing use of chemicals for refrigeration and responsible for the safety of their communities, municipal safety authorities demanded that safety rules be adopted to govern mechanical refrigeration systems. This posed a problem for manufacturers who were concerned lest a variety of safety rules throughout the country place unnecessary restrictions on their operations. They asked for the development of uniform safety rules that could be adopted by all states and thus eliminate the possibility of undue increase in the cost of refrigeration systems to the users.

To bring all groups together for this purpose, the American Standards Association procedures were used with the American Society of Refrigerating Engineers as sponsor. The committee responsible for development of the standard under ASRE sponsorship is one that brings into the work the outstanding national groups not only in the production of mechanical refrigeration equipment but also of the different types of refrigerants, government, safety, and insurance groups, and representatives of users such as the Frozen Food Lockers Institute and National Association of Refrigerated Warehouses. In developing the present edition, special subcommittees were responsible for solving many of the urgent problems before the committee. These included subcommittees on safety valves, refrigerant piping valves and fittings, unfired pressure vessels, and on specifications related to the ASME Unfired Pressure Vessels Code. Another subcommittee correlated the suggestions from the various subcommittes.

In general, the new version of the standard has been considerably simplified and is more comprehensive than the 1939 edition. Not only has the code been clarified by elimination of ambiguous phrasing and the edition of many new definitions, but in a few instances hazards unforeseen in the formulation of the 1939 code have been corrected. Two new refrigerants are recognized.

The excellent safety record of Group I (see footnote, page 236) refrigerants since the 1939 revision indicated that the rules governing the use of these refrigerants could be somewhat relaxed. This has been accomplished in the 1950 edition.

In addition to this, there was an increased demand by municipal inspection authorities that the B9 Safety Code be made to include the requirements of the ASME Unfired Pressure Vessels Code insofar as refrigeration system pressure vessels are concerned. Because refrigeration equipment manufacturers felt that the ASME Code did not adequately take into account the peculiarities of refrigeration systems, it was necessary to request the ASME code authorities to revise the ASME Code somewhat in order to make it possible for refrigeration equipment manufacturers to comply with it in the manufacture of refrigerant receivers and condenser receivers.

As a result of cooperation by the ASME Unfired Pressure Vessels Code Subcommittee and the B9 Code Drafting Subcommittee, these two codes are now technically consistent.

The ASA B9 Safety Code is intended to provide reasonable safeguards to life, limb, health, and property; to correct certain practices which are inconsistent with safety; and to prescribe standards of safety which will properly influence future progress and developments in refrigerating systems. It is the intent of this code to recognize listing by an approved nationally recognized testing laboratory as defined in the standard as an alternate method of providing equivalent safety in certain instances.

The newly revised code, like the 1939 code, is expected, therefore, to serve as a recognized authority for minimum safety in design and installation, uniformly acceptable to enforcement authorities. Many cities have adopted the 1939 code in full and some have already provided for adoption of the new code. Among the latter are Akron and Cleveland, Ohio; Fort Lauderdale, Florida; and Memphis, Tennessee. Among the many other cities that enforce the 1939 code in full or with some modifications are Cincinnati, Detroit, Grand Rapids, Hartford, Los Angeles, Miami, Minneapolis, and San Francisco.

If the code were uniformly adopted through the country, refrigeration equipment could be installed everywhere without alteration in the field because it would be manufactured to conform with code requirements. This is important from the standpoint both of safety and economy. Formulators of the code emphasize the importance of adopting the entire code rather than portions of it or with provisions altered by anyone not familiar with the interdependability of all provisions. They point out that "a great deal of the value of the code is lost if only sections of it are followed; the Code is built, one regulation upon another, and to use it piecemeal is to destroy the effectiveness of the document."

The various subcommittees which revised the code have now been dissolved following its approval. A new subcommittee has been created known as the Interpretations Subcommittee. On request for clarification this committee will interpret the intent of the revised code. The committee is also empowered to make suggestions to the sectional committee concerning future revisions of the code. E. T. Benson, Frigidaire Division, General Motors Corporation, is chairman of this Interpretations Subcommittee. Other members are: J. R. Chamberlain, Assistant Chief Engineer, York Corporation representing the Air Conditioning and Refrigerating Machinery Assn; S. V. James, Underwriters Laboratories; J. C. Rehard Chief Safety Engineer, City of Detroit, representing the Building Officials Conference of America; L. J. Wallace, representing the Refrigeration Service Engineers Society; and M. C. Turpin, Secretary, American Society of Refrigerating Engineers.

Copies of the American Standard Safety Code for Mechanical Refrigeration (B9.1-1950; ASRE 15-R) are available at $1.00 per copy.

What Labels?

"Modern fabrics are engineered fabrics," points out M. Frances Henry in the May issue of *What's New in Home Economics*, in an article whose title poses the question "What Labels?" Miss Henry calls labels the point-of-sale means by which the manufacturer tells his story to the user of his product. Technical progress represented by combinations of fibers in a fabric and the rise of special finishes may be wasted unless the consumer knows what to expect and uses the fabric for the purpose for which it is best suited, she declares.

An informative label according to the National Consumer-Retailer Council is one which tells: (1) What the product is made of, (2) How it is made, (3) How it will perform, (4) How it should be used, (5) How it should be cared for, (6) The name and address of the manufacturer or distributor and the brand name.

If the story is to reach the user effectively, it needs to be given in terms which have the same meaning to all. Such terms as "'fine quality,' 'sheer', 'longwearing', 'sturdy', 'permanent finish', 'withstands repeated cleanings', are relative terms which have different meanings to different persons and under various conditions," Miss Henry maintains. "The value of 'tested and approved' also depends upon whether the tests used are accepted as adequate by persons qualified to know, whether the testing is done by a standard procedure which can be duplicated, and by whom the results are approved."

As an example of such a standard Miss Henry calls attention to a number of standards and tests now mentioned on labels, among them Commercial Standard CS 59-44, which provides standard tests for colorfastness.

"Consumers need to read labels with a critical eye and to know how to interpret the statements made," she says. "For example, a crease-resistant process which changes the molecular structure and thus is permanent for the life of the fabric is obviously more desirable than a finish which loses its effectiveness after a number of dry cleanings or launderings.

"To clear up this type of confusion or lack of standards," Miss Henry states, "the National Retail Dry Goods Association is sponsoring a project for the development of performance standards for rayon fabrics for various uses. The committee appointed in June, 1949, and working under the procedure of the American Standards Association set out to establish quality control and informative labeling for rayon fabrics." These proposed standards include 29 nationally recognized test methods for determining performance of rayon fabrics.

"Such action," Miss Henry says, "is a noteworthy example of industry self-regulation and of how, under free enterprise, industry initiative in solving its problems builds good will. Achievement of the aims also will benefit consumers."

"Standard" Grays

(*Continued from page* 235)

terest aroused by this paper and later consideration of the question by the ASA Company Member Conference resulted in a request that a project on color for industrial apparatus and equipment be initiated, starting with gray finishes.

ASA Sectional Committee Z55 started its work with the proposed gray finishes suggested in this 1945 paper. Some modifications were made to compromise past practices and to present a series of four grays that would provide better color harmony, would satisfy the majority of requirements on industrial apparatus, and would be capable of extension if desired for special conditions. As a result of intensive work by a competent subcommittee, recommendations were soon made on a series of four grays, and these recommendations became widely known because of the unusual interest in this subject. Considerable delay occurred in bringing the proposal to a letter ballot because of the time taken to study tolerances in the preparation of color specimens that were needed to illustrate the proposal. The apparent need for this standard was indicated by the frequent questions: When will the standard become official; and is it safe to use the standard before formal approval? Evidence indicated substantial acceptance in practical use before the standard was approved, and it was known that many companies were waiting only for the publication of the American Standard before adopting these grays. It is interesting to note that the National Electrical Manufacturers Association submitted the original proposal on standard gray finishes to letter ballot of its membership in 1947 but held up adoption because of initiation of the project in ASA.

With approval of the standard grays, it is probable that the committee will consider the practicability of standardization of other colors. The committee will welcome information on the need for such standards. Comments and suggestions should be sent to the American Standards Association, 70 East 45 Street, New York 17, N. Y.

Proposed Legislation

(*Continued from page* 224)

and economy of ASA operations could be properly handled.

Many more questions similar to those presented above might be posed to illustrate ways and means whereby legislation and governmental direction can be made unnecessary in so far as standardization in general and American Standards in particular are involved.

Members of ASA—are you doing all that you can to make your organization completely successful?

ISO Meetings

(*Continued from page 229*)

It appeared likely that the United States would also soon be in a position to make a decision on accepting the secretariat for ISO/TC 67 on Material for Pipe Lines and Other Fixed Installations in the Field of the Petroleum Industry.

The secretariat of ISO/TC 20—Aviation, which had been relinquished by the United States, was assigned to the United Kingdom.

Action was taken to assign the secretariat of ISO/TC 40—Upholstery Materials, to India, or failing acceptance by the Indian member-body, to refer the question to the 1951 meeting of the Council.

ISO Constitution

A great deal of time was spent by the Council in considering changes in the Constitution presented by a committee under the chairmanship of Vice Admiral G. F. Hussey, Jr (USA). The changes agreed upon are to be circulated to the ISO member organizations for approval. The most important changes in the Constitution and Rules of Procedure pertain to the officers and the make-up of the Council. The President is established as an independent officer who may not represent any member-body on the Council. The Council will consist of the President and the representatives of 11 member-bodies. Further, the vice-president may remain on the Council in a personal capacity after the expiration of his member-body's term. Provision is made for selecting a treasurer from any country having a member-body in the Organization. He may serve a total of six years and if his country's member-body is a member of the Council during his term of office he may at its option represent that member-body on the Council. If he does not represent a member-body, he may vote only on matters pertaining to finances.

The temporary provision of five permanent memberships on the Council is superseded by an arrangement whereunder there are no permanent memberships but any member-body may be re-elected to the Council immediately upon expiration of its term of office. Provision was made for terminating the present permanent memberships by lot—two in 1951; one in 1952; and two in 1953.

The Council adopted a resolution setting forth its view that the contribution of the four member-bodies which have held permanent seats on the Council since the inception of the Organization has been so important from the financial, technical, and administrative viewpoints that it would be to the overall advantage of the ISO if each of these member-bodies were re-elected to the Council whenever its term expired.

The remaining changes deal largely with improvements in administration and simplification of the provisions of the constitution and rules of procedure. Agreement was reached by the Council on the sense and phraseology of the English text. The French representative on the Council, General Salmon, and his assistants have been assigned responsibility for providing a French text conforming to the sense of the English text. These texts will be circulated to all members of the Council for letter ballot on each of the 61 amendments. An affirmative vote of three-quarters of the member-bodies is required for the adoption of each amendment to the Constitution and an affirmative vote of a majority of the member-bodies is sufficient for adoption of each amendment to the Rules of Procedure.

This was the first meeting of the Council at which M. Albert Caquot of France presided. M. Caquot, who is an outstanding civil engineer, with a reputation not only in his own country but throughout the world, contributed a great deal to the procedure by the manner in which he harmonized diverging points of view.

At the close of the first day's Council meetings, the Council adopted a resolution expressing its affection for Mr Howard Coonley and its appreciation for his services as first president of ISO. The resolution was transmitted to Mr Coonley by cable.

Research Association

(*Continued from page 226*)

committees[1] in the development of complete standards for the various types of copper and copper-base alloy fittings used in making soldered joints in copper tube, the use of which has increased tremendously in the plumbing and heating field.

In conclusion, it might be well to point out a difficulty which the Association has experienced in its contact with various municipal, state, and other governmental codes and regulations. Because of the wide application of its products in the building field, the use of these products is frequently specified in such codes and regulations and the industry, through the Association, has struggled with the continuous problem of assuring that the latest standards and specifications are reflected in these regulatory documents.[2] It is frequently found that requirements in such codes are established by reference to a dated standard or specification which, because of revisions or superseding issues, has become more or less obsolete. Apparently there is at present no regular procedure under which the various government agencies are definitely informed of such revisions, so that they may be incorporated in the codes or regulations. It is found, for example, that the code of one of the largest cities in the country refers to a specification issued in 1933 and which has been superseded by numerous reissues and revisions since. This is a problem which merits the attention of all the interested industries. It is one which this Association would be glad to have further discussed at some meeting of the staff executives of ASA member-bodies.

[1] This is a group working under Sectional Committee B16 on Pipe Flanges and Fittings, sponsored by the American Society of Mechanical Engineers; Heating, Piping, and Air Conditioning Contractors National Association; and the Manufacturers Standardization Society of the Valve and Fittings Industry.

[2] This problem is allied to that under consideration by Committee Z56 on Model Laws and Ordinances. A report by this committee, *Nationally Recognized Standards in State Laws and Local Ordinances* has been widely circulated for discussion.

Standards From Other Countries

MEMBERS of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received.

For the convenience of our readers, the standards are listed under their general UDC classifications.

621.753 Tolerances. Fittings. Gages

Belgium

ISA Tolerance Systems. Deviations of Limit Gages for Holes, (2nd edition 1950), NBN 106

Rumania

Metric Taper Gages, STAS 820

621.791 Soldering. Welding. Cutting

India

Silver Solder. Tentative Specification, IS:192

Soft Solder. Tentative Specification, IS:193

Rumania

Welding Processes. Terminology, STAS 741

622 Mining

Germany

Seamless Pipe-drill for Deep-well Drilling, DIN 4918, Bl.1 & 2

Wooden Sleepers Used in Mines, DIN 20502, Bl.1

Details of a Mining Chain Conveyor, DIN 22210, Bl.1

Dredgers, Different Types, used in Mining, DIN 22266

Rumania

Petroleum Industry. Hand Tool for Pipe Extraction, STAS 214

Petroleum Industry. Rotary Drill Head, STAS 328

Petroleum Industry. Deep-well Drilling Head, STAS 407

Duplex Pump, Type 1-2, STAS 557

Oil-drilling Tools. Lifting Tools, STAS 206, 207

Coupling for Drill Pipes, STAS 217

Oil Drilling Tools. Special Coupling, STAS 324

Oil Drilling Tools. Pump Shaft, STAS 329

Oil Drilling Tools. Pipe Extractor, STAS 593

625.1/.6 Railways and Tramways

France

Railroad Material. Indentification Plates for Compressed Air Tanks, NF F 00-014

Special Anchor-head Bolts, NF F 33-001

Hungary

Narrow Gage Railways. Steel Ties, Clamp, Bolts, etc., MNOSZ 2821/2/3; MNOSZ 2827/8

Italy

Types of Street Cars on Two Trucks, UNI 3023

Street Cars. Location of the Air-brake Control Handle, UNI 3024

Street Cars. Clearance for the Automatic Airbrake Control and Sizes of Boring for Connecting Tubings, UNI 3025

Spain

Profile and Detail of Tire Rim, UNE 25020

Tolerances of Straight Axles with Outside Journal for Roller Bearings, UNE 25022

Mounted Axles and Wheel Centers. Tolerances, UNE 25007/8/9

Axle Journal. Tolerances, UNE 25021

629.12 Ships and Shipbuilding

Demountable Boat-hooks for Inner Planking, NF J 31 485

Metal Individual Cupboard for Crew Members, NF J 35 365

Ferrules for Fixing Toilet Bowls, NF J 35 536, 538

Handles for Swing-Doors, NF J 36 164

Ventilation Louvers, NF J 36 370/1

Cable Supporting Plates, NF J 78 200

Italy

Cast Gate Valves for Ship Pipeline and then Details, Heavy Series, UNI 3005 thru 3015

Rumania

Two Types of Anchors, STAS 595, 596

Marine Anchors. General, STAS 656

Spain

Futtock Shroud, UNE 27006

63 Agriculture. Forestry. Stockbreeding. Animal Produce. Hunting. Fisheries

Rumania

Wheat and Vegetable Seeds, STAS 813, -814

Grafting and Grafts of Vines, STAS 218 thru 222

Spain

Gathering Olives, UNE 34301

637 Produce from Domestic Animals

Belgium

Determination of Fat content in cream: Gravimetric Method (Gerber-Roeder method), NBN 200

France

Butter Cakes, NF V 42-001

637.135 Milk Transport, Bottles, Cans, Vehicles

Belgium

Standard milk can, capacity 20 liter, NBN 218

639.1 Hunting

Germany

Hunting Traps, DIN 11370

64 Domestic Science. Housekeeping

France

Domestic Appliances for Cooking, Heating, Lighting and Refrigeration (correction to the 1947 edition of standard), NF D 32-325

Combination Gas—Electric Cookstoves, NF D 33-401

Hungary

Enamelware, MNOSZ 477-484

Aluminumware, MNOSZ 3302-3329

662 Pyrotechnics. Explosive Materials. Combustibles

Hungary

Charcoal, MNOSZ 211

Poland

Lead Nitrate, PN C 84010

Sodium Nitrate, PN C 86008

Nitroglycerine Paste, PN C 86009

Rumania

Black Powder, STAS 499

Coal Briquettes, STAS 298, -299, -304

664 Preparation and Preservation of Solid Foodstuffs

Chile

Specifications for the Installation of Drinking Water, INDITECNOR 2.61-11

Regulation for Premises where Preserves and Fruit Juices are Manufactured, INDITECNOR 2.23-1

Hungary

Control of Foodstuff. Preserves. Sampling, MNOSZ 3602

Rumania

Flour Pastes (Doughs), STAS 756

Wheat Bread, STAS 878

Spain

Extraction of Olive Oil, UNE 34303

666.94 Cement. Portland Cement

Rumania

Portland Cement STAS 227

669 Metallurgy

Hungary

Aluminum and Aluminum Alloy Semi-finished Products, MNOSZ 3745-3755

Steel Bars to Various ISA Tolerance Recommendations, MNOSZ 4369-4378

India

Specification for Aluminum Powder for Paint, IS:72

Copper, Tentative Specifications, IS:191

Italy

Special Primary Aluminum in Pigs (Titanium-Chrome Aluminum), UNI 3021

Aluminum Alloy in Pigs, UNI 3022

Poland

Tension Tests of Malleable Metals, PN H 04310
Rolled Carbon Steel Plates, PN H 92203
Rolled Carbon Steel Strips for Pipe Manufacturing, PN H 92324
Zinc Plates & Strips, PN H 92900/1
Carbon Steel Strips, Rolled, PN H 93202

Rumania

Brass Strips, STAS 290
Round Brass Bars, STAS 291
Brass Wire, STAS 390
Hot-rolled Steel Bars for Locomotive Stays, STAS 670
Round Steel Bars for Reinforced Concrete, STAS 438
Hot-rolled I-beams, STAS 565
Carbon Steel, Different Grades, General Specifications, STAS 600
Zinc, Refined, STAS 646
Industrial Lead, STAS 664
Hollow Copper Stay-bars, STAS 783
Nickel- and Chrome-Nickel Steels for Case Hardening, STAS 793
Chrome- and Chrome-Manganese Steel for Case Hardening, STAS 872
Quality Siemens-Martin Carbon Steels, STAS 880

Spain

Metallurgical Products. Definitions, UNE 36001
Iron. Definitions, UNE 36002
Cast Iron. Definitions, UNE 36003
Steel. Definitions, UNE 36004
Ferrous Alloys. Definitions, UNE 36005
Fine Carbon & Alloy Steel. General, UNE 36010
Fine Carbon Steels, Forged or Rolled for Mechanical Constructions, UNE 36011

674 Wood Industry

France

Plywood Boards of General Use. Classification, NF B 53 504

Hungary

Oakwood, MNOSZ 47
Beech & Oak Staves, MNOSZ 540
Various Barrels, MNOSZ 1805, 1808/9

India

Specifications for Coniferous Sawn Timber Intended for Further Conversion. Tentative, IS:190

Poland

Lumber for Mine Shaft, PN B 95001

Rumania

Tong-and-Groove Joint, STAS 258
Wood Logs and Terminology of Sawn Lumber, STAS 435
Wood. Testing for Preservation Against Fungi and Insects, STAS 649 thru 651

676 Paper and Cardboard Industries

France

General Classification of Papers & Cardboards—Definition, Characteristics, Tolerances, NF Q 00-001

Hungary

Roofing Paper, Raw, MNOSZ 134

Rumania

Newsprint for Rotary Press, STAS 260
Newsprint for Flat Press, STAS 261
Wood-pulp Paper, Coarse Type, STAS 284
Paper for School Books, STAS 285
Three-ply Pasteboard, STAS 516

678 Rubber Industry

Hungary

Bicycle Tires, MNOSZ 1663

Rumania

Rubber Tubing for Normal Pressure, STAS 263
Inner Tube for Tires, STAS 627

679.5 Plastic Industry in General

Germany

Plastic Material. Various Types, DIN 7708
Pressed Insulating Materials, DIN 40605, 40606

69 Building Industry and Trades. Building Construction

Belgium

Modular System. Window Openings and Frames, NBN 208

Hungary

High Strength,, Trass-cement, MNOSZ 258
Mortars, MNOSZ 526
Concrete and Its Ingredients, MNOSZ 934

India

Specification for Fireclay Mortar for Laying Fireclay Bricks, IS:195

Italy

Openings for the Entrance and Inside Single Doors for Dwellings, UNI 2995/6
Panelled and Glazed Wooden Doors with Metal Fittings, UNI 2997
Entrance and Inside Panelled and Glazed Single Doors for Dwellings, UNI 2998/9
Structural Details of Frames for Glazed Entrance and Inside Single Doors, UNI 3000/1
Types of Joints of the Frame for Entrance and Inside Single Doors, UNI 3002/3
Hardware for the Entrance and Inside Single Door for Dwellings, UNI 3004

Poland

Construction Details of Wooden Window Frames, PN B 1611, -1612

Rumania

Fat Lime for Building Purposes in Flakes or Paste, STAS 146
Industrial Fat Lime, Types 1 & 2, STAS 254, 255
Seamless Structural Pipes, STAS 405
Cement Tiles, STAS 451
Water Analysis for Mortar and Concrete, STAS 790
Asphalt Impregnated Pasteboard, STAS 137

Spain

Test for Friction Wear of Flagstones and Cement Tiles, UNE 7015
Determination of Penetration in Bituminous Materials, UNE 7013

744 Technical Drawings

Rumania

Representation of Various Forms of Springs, STAS 707
Graphical Symbols for Sanitary Installations, STAS 789

Spain

Sizes and Scales of Technical Drawings, UNE 1026

929.9 Flags. Standards

Hungary

Flags, MNOSZ 436

Bolts and Nuts

(*Continued from page 227*)

and nuts, such as the manufacturer of electrical equipment, the railroads, construction work, etc. His conclusion was that due to the wide use of the present American Standard series and the huge investments in present practice the general user groups would be reluctant to make changes in their present practice.

This point of view was confirmed by Irvin H. Fullmer, (National Bureau of Standards; secretary, Interdepartmental Screw Thread Committee) who spoke from the viewpoint of the Federal Government as a general user. The Government would prefer to avoid increasing inventories of products needed by different government departments.

T. A. Clark, (J. I. Case Co) speaking for the Farm Equipment Manufacturers also concurred with the statement made by Mr Frye. He stated that the farm equipment industry would prefer to see a selection of "Unified" widths-across-flats made from the present American Standard.

In its meeting on June 1 the Conference adopted three resolutions recommending for designation as "Unified" the following widths-across-flats:

(1) the hexagon sizes of the American Standard Heavy series of nuts and bolts with nominal diameters from ¾ to 2 in., inclusive;

(2) the hexagon sizes of the American Standard Regular series of nuts and bolts with nominal diameters from ¾ to 1 in., inclusive;

(3) the width-across-flats 7/16 in. for bolts and nuts of ¼ in. nominal diameter; and ½ in., for bolts and nuts of 5/16 in. nominal diameter.

The Conference agreed that the width-across-flats of ⅞ in. of the American Standard Regular bolt and nut, nominal diameter 9/16 in., should not be recommended for unification, since the American group reported that this size was being discontinued in this country. If there were some need for this size in military aircraft, the problem would probably be handled as a separate one apart from this Conference.

It was found that some of the pro-

(*Continued on page 245*)

AMERICAN STANDARDS

Status as of August 11, 1950

Legend

Standards Council—Approved by Standards Council is final approval as American Standards; usually requires 4 weeks

Board of Review—Acts for Standards Council, gives final approval as American Standard; usually requires 2 weeks

Correlating Committees—Approve standards to send to Standards Council or Board of Review for final action; approval by correlating committee usually takes 4 weeks

Building

American Standards Just Published—

Specifications for Masonry Cement ASTM C 91-49; ASA A1.3-1950 (Revision of ASA A1.3-1948) $.25

Structural Clay Non-Load-Bearing Tile, ASTM C56-49; ASA A76.1-1950 (Revision of ASTM C56-41; ASA A76.1-1942) $.25

Sponsor: American Society for Testing Materials

Submitted to ASA for Approval—

Pile Foundations and Pile Structures, A96
Sponsor: American Society of Civil Engineers

Withdrawal Requested—

Specifications for Structural Wood Joist and Plank, Beams, and Stringers, and Posts and Timbers (ASTM D 245-37; ASA 07-1939)
Sponsor: American Society for Testing Materials

Design for Joint Plates for Seven Inch Girder-Grooved and Guard Rails, E2-1923

Design for Joint Plates for Nine-Inch Girder-Grooved and Guard Rails, E3-1923

Design for Seven-Inch Girder Grooved Rail, E4-1933

Design for Nine-Inch Girder Grooved Rail, E5-1933

Design for Seven-Inch Girder Guard Rail, E6-1933

Design for Nine-Inch Girder Guard Rail, E7-1933

7-Inch 82 lb. Plain Girder Rail and Splice Bars for Use in Paved Streets, E8-1933

7-Inch 92 lb. Plain Girder Rail and Splice Bars for Use in Paved Streets, E9-1933

7-Inch 102 lb. Plain Girder Rail and Splice Bars for Use in Paved Streets, E11-1933
Sponsor: American Transit Association

New Project Requested—

Applying Gypsum Wallboard
Requested by: Gypsum Association

Consumer

In Correlating Committee—

Colorfastness to Light (AATCC 16-45) L14.53

Colorfastness of Acetate Rayons to Atmospheric Fumes (AATCC 23-46) L14.54

Resistance of Textiles to Mildew and Rot, and Evaluation of Textile Fungicides (AATCC 30-46) L14.55

Colorfastness to Perspiration (AATCC 15-45) L14.56

Colorfastness to Chlorine Bleaching (AATCC 3-42) L14.57

Colorfastness to Peroxide Bleaching (AATCC 29-45) L14.58

Water Resistance of Fabrics—Resistance to Hydrostatic Pressure (AATCC 18-41) L14.59

Resistance to Water Spray (AATCC 22-41) L14.60

Resistance to Absorption of Water During Immersion (AATCC 21-41) L14.61

Detection of Phototropism (AATCC 32-46) L14.62

Colorfastness to Pleating (AATCC 31-46) L14.63

Resistance of Textile Fabrics and Yarns to Insect Pests (AATCC 24-49) L14.64

Evaluation of Insect Pest Deterrents on Textiles (AATCC 28-49) L14.65

Specifications for Textile Testing Machines (ASTM D 76-49) L14.66

Methods of Testing and Tolerances for Knit Goods (ASTM D 231-46) L14.67

Definitions of Terms Relating to Textile Materials, L14.12 (Revision of ASTM D 123-48; ASA L14.12-1949)

Methods of Testing and Tolerances for Cotton Yarns, L14.13, (Revision of ASTM D 180-47T; ASA L14.13-1949)

Methods of Test for Asbestos Yarns, L14.18 (Revision of ASTM D 299-48T; ASA L14.18-1949)

General Methods of Testing Cotton Fibers, L14.23 (Revision of ASTM D 414-47T; ASA L14.23-1949)

Method of Test for Fiber Length of Wool, L14.32 (Revision of ASTM D 519-40; ASA L14.32-1949)

Methods of Testing and Tolerances for Single Jute Yarn, L14.34 (Revision of ASTM D 541-41; ASA L14.34-1949)

Methods of Testing and Tolerances for Glass Yarn, L14.36 (Revision of ASTM D 578-47T; ASA L14.36-1949)

Methods of Testing and Tolerances for Woven Glass Fabrics, L14.37 (Revision of ASTM D 579-47; ASA L14.37-1949)

Methods of Testing and Tolerances for Woven Glass Tapes, L14.38 (Revision of ASTM D 580-47; ASA L14.38-1949)

Methods of Testing and Tolerances for Woven Glass Tubular Sleeving and Braids, L14.39 (Revision of ASTM D 581-44; ASA L14.39-1949)

Methods of Testing Felt L14.52 (Revision of ASTM D 461-47; ASA L14.52-1949)

General Methods of Testing Woven Textile Fabrics, L14.68 (Revision of ASTM D 39-39; ASA L5-1939)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Drawing Room Practice

In Standards Council—

Abbreviations for Use on Drawings, Z32.13 (Revision of Z32.13-1946)
Sponsors: American Institute of Electrical Engineers; American Society of Mechanical Engineers

Electrical

Submitted to ASA for Approval—

Sampling Electrical Insulating Oils, Method of Test (ASTM D 923-49; ASA C59.21)

Power Factor and Dielectric Constant of Electrical Insulating Oils of Petroleum Origin, Method of Test (ASTM D 924-49; ASA C59.22)

Gas Content of Insulating Oils, Method of Test (ASTM D 831-48; ASA C59.23)

Inorganic Chlorides and Sulfates in Insulating Oils, Method of Test (ASTM D878-49; ASA C59.24)

Detection of Free Sulfur in Electrical Insulating Oils, Method of Test (ASTM D 981-48 T; ASA C59.25)

Natural Block Mica and Mica Films Suitable for Use in Fixed Mica-Dielectric Capacitors, Specification for (ASTM D 748-49; ASA C59.26)

NEMA Standards for Laminated Thermosetting Products (Revision of C59.16-1949)

Method of Testing Sheet and Plate Materials Used in Electrical Insulation (Revision of ASTM D 229-46; ASA C59.13-1948)
Sponsor: American Society for Testing Materials

Proposed Addition to American Standard for Attachment Plugs and Receptacles C73-1941—Grounding-Type Attachment Plug Caps and Receptacles, C73
Sponsor: National Electrical Manufacturers Association

Guide for Loading Oil-Immersed Step-Voltage and Induction-Voltage Regulators, C57.35 (Revision of C57.35-1948)
Sponsor: Electrical Standards Committee

Gas-Burning Appliances

In Correlating Committee—

Approval Requirements for Gas Water Heaters (Revision of Z21.10-1949)

Addenda to Approval Requirements for Gas-Fired Room Heaters (Revision of Z21.11-1949)

Approval Requirements for Installation of Gas Equipment in Large Boilers (Revision of Z21.33-1922)

Addenda to Approval Requirements for Central Heating Gas Appliances (Revision of Z21.13-1945)

Installation of Gas Piping and Gas Appliances in Buildings, Z21.30 (Revision of K2-1927 and Z27-1933)
Sponsor: American Gas Association

Highway Traffic

In Correlating Committee—

Specifications for Traffic-Actuated, Traffic Signal Controllers and Detectors, D13.1
Sponsor: Institute of Traffic Engineers

Mechanical

American Standards Just Published—

Seamless Alloy-Steel Pipe for High-Temperature Service, ASTM A 158-49T; ASA B36.21-1950 $.25

Seamless Carbon-Molybdenum Alloy-Steel Pipe for High-Temperature Service, ASTM A 206-48T; ASA B36.22-1950 $.25

Welded Alloyed Open-Hearth Iron Pipe, ASTM A 253-47; ASA B36.23-1950 $.25

Seamless Chromium-Molybdenum Alloy-Steel Pipe for Service at High Temperatures, ASTM A 280-48T; ASA B36.24-1950 $.25

Welded Wrought Iron Pipe, ASTM A 72-45; ASA B36.2-1950 $.25

Seamless Carbon-Steel Pipe for High-Temperature Service, ASTM A 106-48T; ASA B36.3-1950 $.25

Electric-Fusion-Welded Steel Pipe (Sizes 4 in. to but not including 30 in.), ASTM A 139-46; ASA B36.9-1950 $.25

Sponsors: American Society for Mechanical Engineers; American Society for Testing Materials

Gray Finishes for Industrial Apparatus and Equipment, Z55.1-1950 $.35

Color Chips illustrating the American Standard Gray Finishes for Industrial Apparatus and Equipment $2.25

Sponsor: Mechanical Standards Committee

In Board of Review—

Large Rivets (½ Inch Nominal Diameter and Larger) (Revision of B18.4-1937)

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Compressed Gas Cylinders Valve Outlet and Inlet Connections (Revision of B57.1-1949)

Sponsor: Compressed Gas Association, Inc

In Correlating Committee—

Recommended Practice for Mechanical Refrigeration Installations on Shipboard, B59

Method of Rating and Testing Refrigerant Expansion Valves, B60

Sponsor: American Society of Refrigerating Engineers

Motion Pictures

In Correlating Committee—

Cutting and Perforating Dimensions for 32-Mm Sound Motion Picture Negative and Positive Raw Stock, Z22.71

Cutting and Perforating Dimensions for 32-Mm Silent Motion Picture Negative and Positive Raw Stock, Z22.72

Sound Records and Scanning Area of 35-Mm Sound Motion Picture Prints, Z22.40

Sponsor: Society of Motion Picture and Television Engineers

Photography

In Correlating Committee—

Methods of Testing for Photographic Enlargers, Z38.7.6

Sponsor: Optical Society of America

Safety

American Standard Just Published—

Safety Code for Industrial Power Trucks, B56.1-1950 $.85

Sponsor: American Society of Mechanical Engineers

American Standard Approved—

Safety in Electric and Gas Welding and Cutting Operations, Z49.1-1950 (Revision of American War Standard Z49.1-1944)

Sponsor: American Welding Society

Standards for Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying (Revision of Regulations for the Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1-1938)

Sponsor: National Fire Protection Assn

What's New on Projects

Cast Iron Pipe, A21—

Sponsors: American Gas Association; American Society for Testing Materials; American Water Works Association; New England Water Works Association

As reported at the meeting of Sectional Committee A21 on July 10, 1950, the committee is beginning to see the end of its job. During the meeting it was reported that one proposed standard—proposed American Standard Specifications for Short-Body Cast-Iron Fittings, 3-Inch to 12-Inch, for 250 psi Water Pressure plus Water Hammer, A21.10—is before the sponsors for approval before submittal to ASA. Announcement also was made that letter ballot action of the sectional committee is under way on a proposed revision of American Standard Specifications for Cast-Iron Pit-Cast Pipe for Water or Other Liquids, A21.2-1939. Minor modifications in one section of these two proposed standards were authorized and will be acted upon by the sectional committee and by the sponsors without unduly delaying submittal of the proposed standards.

On two other proposed standards—Pipe Centrifugally Cast in Metal Molds, for Water, A21.6, and Pipe Centrifugally Cast in Sand-Lined Molds, for Water, A21.8—letter ballot of the technical committee is now under way. It is expected that action will be favorable and that the sectional committee vote will follow early this Fall.

A revision of American Standard Specifications for Cement-Mortar Lining for Cast-Iron Pipe and Fittings, A21.4-1939, still requires study from one of the subcommittees, after which a letter ballot of the sectional committee is to be taken.

Also nearly completed is a revision of the American Recommended Practice Manual for the Computation of Strength and Thickness of Cast-Iron Pipe, A21.1-1939. The revised standard will consist of technical discussion on methods of determining sizes, capacities, and types of cast-iron pipe to be used, accompanied by two appendices—the first containing data for cast-iron pipe for water and other liquids and the second presenting similar information for pipe for use in transporting gas. Following some editorial work, letter ballot of the sectional committee will be taken.

Three standards covering cast-iron pipe for the gas industry—Pit-Cast Pipe for Gas, A21.3; Pipe Centrifugally Cast in Metal Molds, for Gas, A21.7; and Pipe Centrifugally Cast in Sand-Lined Molds, for Gas, A21.9—were reported to be available in galley proof form. Following study by an editorial committee and action by a subcommittee, a letter ballot of the sectional committee on the acceptability of these proposed standards is to be taken.

Further work looking toward the preparation of specifications for tar dip coating for cast-iron pipe was deferred.

The sectional committee discussed at length the preparation of specifications for fittings for cast-iron pipe larger than 12 in. in size. This discussion included both long body and short body fittings. Research in this undertaking has been under way for some time and further recommendations are expected to result from study now being given to this subject by a committee of the manufacturers for cast-iron pipe.

Method of Determining Rentable Space—

A canvass is now under way of organizations representing owners of commercial buildings to determine whether they believe there should be an American Standard method of determining the square footage of rentable areas in new and remodeled buildings. The project was proposed by the American Institute of Architects. The Institute called attention to the use that has been made of a somewhat similar document—Cubic Contents of Buildings—A Standard Method of Calculation and Form of Statement, AIA document 239. The AIA indicated that its earlier document has become well established as a guide to owners, architects, contractors, and others interested in determining space in buildings.

Nomenclature, Metal End Products—

A recommendation that this subject be taken up under ASA procedure, made by the Company Member Conference to the Standards Council, will be discussed at the next meeting of the Mechanical Standards Committee. The recommendation covers:

(*a*) The development of standard nomenclature for metal end products, defined in terms of dimensions rather than process or any other basis that might exist, to cover wrought metal bar, strip, sheet and plate, along the following lines:

Thickness (*In.*)	*Width (In.)*	*Classification*
0.250 and over	Up to 6 Incl	Bar
Over 0.250	Over 6	Plate
0.249 and under	Up to 6 Incl	Strip
0.249 and under	Over 6	Sheet

(*b*) Definitions or nomenclature be developed for metal end products to cover wire, rod, pipe, tube, tubing, hose, etc.

Traffic-Actuated, Traffic Signal Controllers and Detectors, D13—

Sponsor: Institute of Traffic Engineers

Specifications recently approved by the Institute of Traffic Engineers' Board of Directors have been submitted to the American Standards Association for approval. A canvass is now being made of members of the ASA's Highway Traffic Standards Committee as organizations particularly interested in this problem to determine whether the standard is acceptable to them.

Glossary of Terms in Nuclear Science and Technology, Z63—

Two of the nine sections to be included in the new glossary of nuclear terms have now been published and are available. These two sections cover Chemical Engineering and Biophysics and Radiobiology. In the former are 120 terms and definitions while the latter includes a total of 250.

The ASME Nuclear Energy Glossary Committee has been responsible for preparation of the drafts of these sections, which have been distributed by the National Research Council to a selected list of those concerned for criticism. Two conferences were responsible for approving plans for the glossary, coordination of work already being done by various groups, and publication arrangements. Eight national scientific and technical societies, seven national governmental agencies, four divisions of the National Research Council, and one trade association participated.

After each section is prepared and circulated for criticism, it is revised in light of comments received by a Review Committee appointed by the National Research Council. Each section is then printed by the American Society of Mechanical Engineers as a proposed American Standard under project Z63. When these proposed standards have been in use for a year or two, comments will be considered, necessary revisions made, and all sections published in a single book.

When completed, the Glossary will include all general terms, as well as those used in the fields of Reactor Theory, Reactor Engineering, Chemistry, Chemical Engineering, Biophysics and Radiobiology, Instrumentation, Isotopes Separation, and Metallurgy. Each section will include terms and their definitions (1) peculiar to the field of nuclear energy, (2) used in this field in a different sense or with different emphasis from what is most commonly understood in other connections and, (3) used elsewhere in the same way but so infrequently as to be unfamiliar. An alphabetical arrangement of the terms of all sections is included to enable the user to determine readily the section or sections in which definitions of the terms will be found.

It is expected that all nine sections will be published before the end of 1950. Titles and prices are:

I	General Terms	$1.00
II	Reactor Theory	1.50
III	Reactor Engineering	.75
IV	Chemistry	.60
V	Chemical Engineering	.60
VI	Biophysics and Radiobiology	.60
VII	Instrumentation	1.00
VIII	Isotopes Separation	.60
IX	Metallurgy	.60

Lamp Ballasts

The third standard in the series of Proposed American Standard specifications for lamp ballasts has now been released for a year's trial. The Proposed American Standard Specification for Fluorescent Lamp Ballasts, C82.1, completes the group of three specifications related to this subject and makes it possible to gain the necessary experience in use to give these proposals consideration for final approval.

Several groups are making active preparations looking toward the early application of these specifications. It is hoped that all interested groups will join in this trial use in order to properly evaluate some of the newly proposed procedures.

Bolts and Nuts

(*Continued from page* 242)

posed widths-across-flats proposed by the British required more detailed consideration. These were the hexagon sizes for the nominal diameters 3/8, 7/16, 1/2, and 5/8 in., which were referred to a subcommittee. After they had reported their findings in the meeting on June 2, the Conference adopted further resolutions recommending for designating as "Unified" the following widths-across-flats:

(4) the dimensions 9/16 in., for 3/8 in. nuts and bolts; 3/4 in. for 1/2 in. bolts; and 13/16 in. for 1/2 in. nuts.

(5) the dimension 15/16 in. for 5/8 in. bolts; and 1 in., for 5/8 in. nuts.

(6) the dimension 5/8 in. for 7/16 in. bolts; and 11/16 in. for 7/16 in. nuts.

(NOTE: The British delegation reserved its decision on resolution 6 and therefore abstained from voting on it.)

The Conference decided that consideration should be given also to dimensions other than hexagon sizes and, upon its recommendation, the chairman, Mr Robb, appointed two subcommittees. One was to deal with head height; nut thickness; finish under head; bearing face of nuts; thread length; radius under bolt head; and chamfer. The other subcommittee was to consider dimensions of slotted head screws. Both subcommittees submitted a report making certain recommendations which were accepted by the Conference "as a study subject to further discussion at some future time."

Gaillard Seminar on Industrial Standardization

The private seminar on Industrial Standardization, held in New York June 19 through 23 by Dr John Gaillard, mechanical engineer, American Standards Association staff, and lecturer at Columbia University, was attended by ten conferees representing the following companies: Aluminum Company of America; American Air Filter Company; Dempster Mill Manufacturing Company; Koppers Company; P. R. Mallory and Company (2 representatives); Marlin Firearms Company (2 representatives); Remington Rand; and York Corporation.

The next seminar will be held in New York January 22 through 26, 1951. Places may be reserved in advance by writing to Dr Gaillard, 400 West 118 Street, New York 27, N. Y.

• • **Comments Asked**—All persons interested in radiographic testing are invited to comment on a new Recommended Practice for Radiographic Testing developed by Committee E-7 on Non-Destructive Testing of the American Society for Testing Materials.

The proposed Recommended Practice is an expansion of material formerly included in the now withdrawn methods of radiographic testing E-15.

Copies are now available from the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa.

The proposed recommendations include five parts: Part I, Equipment and Calibration. Part II, Exposure Factors and Arrangements of Parts. Part III, Protection and Care of Films. Part IV, Processing Films and Viewing Radiographs. Part V, Records, Reports, and Identification of Accepted Material.

Criticisms should be addressed to Chairman Subcommitte I on Radiographic Testing, Dr H. E. Seeman, Research Laboratory, Eastman Kodak Company, Kodak Park, Rochester 4, N. Y. To receive consideration for the first revision, comments must be in by October 16, 1950.

News Briefs

• • **Involute Splines** — Recommendations of the aircraft industry have been taken into consideration in the 1950 edition of the American Standard for Involute Splines, B5.15-1950, now approved by the American Standards Association. The standard was developed by a sectional committee sponsored by the American Society of Mechanical Engineers and the Society of Automotive Engineers. It is a revision of the American Standard Involute Splines, Side Bearing, B5.15-1946.

The 1946 edition of this standard had a wide distribution in other countries, as well as in the United States. It had been accepted by all industries concerned, according to the report of the sponsors.

The National Aircraft Standards Committee accepted the standard in principle for the air frame industry, but recommended some slight changes and additions in order to define specifically the fits required for interchangeable assembly. This was considered by subcommittees of Sectional Committee B5, a subcommittee of the Society of Automotive Engineers, and a group of the NASC. As a result of their consideration the Class 3 errors tabulated in the American Standard Gear Tolerances and Inspection, B6.6-1946, were adopted as a proper basis for determining the effect of unavoidable errors on fitting of splines. Table 27 contains the translation of these data to the basis of Diametral Pitch and numbers of teeth. It was also decided that 60 percent should be the percentage of the total of all errors to be considered as a working maximum for "effective fits." Table I (Section 20) was revised so as to include both dimensional and effective fits, and is based on a spline having 25 teeth.

Drawings have been changed to include the fillet root type, the nomenclature has been expanded and the tables of dimensions enlarged to include all dimensions for both the fillet root and the flat root types.

The minor diameter fits have been put on separate tables, and include pitches from 5/10 through 16/32.

The standard has been published by the Society of Automotive Engineers in its document "Involute Splines and Serrations." It is also being published by the American Society of Mechanical Engineers as American Standard Involute Splines, B5.15-1950. Copies are available from the American Standards Association at $1.00 each.

• • **Vinal Retires**— Dr George W. Vinal, chief of the Electrochemistry Section of the National Bureau of Standards, retired June 30, 1950, after more than 42 years of Government service.

Dr Vinal is internationally known for his research in the field of electrochemistry, particularly for his work in the development and perfection of the silver voltameter and the standard cell, which serve as standards for the international ampere and volt. He has also done extensive research on dry cells and storage batteries.

In the early days of the Bureau, Dr Vinal initiated and carried out exhaustive studies of the silver voltameter as a means of defining the ampere, and made the classical determinations of the "faraday" by both the silver and the iodine voltameters. Since 1918 he has been responsible for the maintenance of the Standard Volt. In 1932 he participated in international joint experiments and succeeded in proving to the Germans that their volt had changed from its 1911 value. During World War II he carried out an extensive program of research in storage batteries and dry-cell development for the Navy, and in addition served as the chairman of the important Joint Army-Navy Committee on Battery Research.

He is chairman of the Technical Committee on Batteries, Federal Security Board; the ASA Sectional Committee on Dry Cells; the Subcommittee on Electrochemical Definitions; and is a Technical Advisor of the U. S. National Committee of the International Electrochemical Commission.

• • **Standards Classified** — Users of ASTM standards approved as American Standards will note that "UDC" numbers are now being added under the approval notice and ASA designation. This is the Universal Decimal Classification number widely used throughout the world. The American Standards Association, as well as the majority of other national standards associations, are now classifying their publications by means of UDC numbers, thus providing an internationally recognized identification that helps to put them into use.

• • **No Coercion**—Inside the front cover of every American Standard published by the ASA now appears a statement making clear the policy of the American Standards Association and the purpose for which American Standards are made available. The statement says:

"An American Standard implies a consensus of those substantially concerned with its scope and provisions. The consensus principle extends to the initiation of work under the procedure of the Association, to the method of work to be followed, and to the final approval of the standard.

"An American Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American Standard does not in any respect preclude any party who has approved of the standard from manufacturing, selling, or using products, processes, or procedures not conforming to the standard.

"An American Standard defines a product, process, or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, quality, rating, certification, testing, and the service for which designed."

• • **Relay Standard Used**—Consensus of the U. S. Department of Interior's Bureau of Reclamation is that the recently published 1950 edition of American Standard for Relays Associated with Electric Power Apparatus, C37.1-1950, is much superior to the former edition. The bureau's procurement specifications for all relays associated with electric power apparatus require that they be in accordance with the latest applicable standards of the American Standards Association. The new American Standard C37.1-1950 is being put into immediate use wherever possible, the Bureau reports.

• • **Fenner Honored**—A citation for more than a half century of outstanding service to highway transportation was presented to David C. Fenner, former vice president of the Mack Truck Company, as a highlight of the Third Highway Transportation Congress recently.

Alfred Reeves, former managing director of the Automobile Manufacturers Association, now serving as advisory vice president in charge of the AMA's New York Office, presented the scroll. He recalled that Mr Fenner's interest in the "horseless carriage" dated back to 1896 when he began the study of automobile design and operation at the Providence, Rhode Island, YMCA.

Mr Fenner, now retired, had been with the Mack Company since 1911. During his career he took an active interest in standardization as an aid in better and safer highway transportation. For many years he served as a member of ASA's Safety Code Correlating Committee, Highway Traffic Standards Committee, and on the Standards Council.

• • **Aluminum Definitions** — to clarify the designation of aluminum sheet and plate, the Sheet Division of The Aluminum Association has adopted standard nomenclature.

Heretofore, the terms "strip" and "coiled sheet" have been applied interchangeably to the same product, but the new nomenclature officially recognizes the latter, more descriptive term.

The Howard Coonley Medal

Recognizing the essential role of industrial executives in bringing the benefits of standardization to their companies and industries, the American Standards Association will present a medal each year to an executive who has made a substantial contribution to the standardization movement as an element of free enterprise. At its June meeting the Board of Directors accepted funds proferred from several industrial sources for this purpose. The medal is being named the "Howard Coonley Medal" in honor of the man whose long and distinguished career in industry has been marked by ardent advocacy of standardization as a part of the free enterprise system.

A Committee on Award will recommend the recipient of the award each year to the ASA Board of Directors. Nominations for the three-man committee are being requested from the American Society of Mechanical Engineers, the American Management Association, and the National Industrial Conference Board. Nominations from these three sources should assure a committee of executives having wide acquaintance and broad experience in American business.

Member-Bodies, Associate Members, and Company Members are invited to submit the names of possible candidates for the award of the Howard Coonley Medal. Nominations should set forth in detail the accomplishments which the proposer believes warrant consideration. Nominations must be received at ASA headquarters not later than October 1, 1950. They will be submitted to the committee without indication as to the identity of the proposer.

Presentation of the first award will be made at the luncheon concluding the National Standardization Conference at the Waldorf-Astoria, New York, Wednesday, November 29.

• • **India**—The Indian Standards Institute recently produced a 15-year plan for switching over weights and measures to the metric system.

• • **Industry Impetus**—"The field of standardization is large; and while much has been accomplished at both the industry and national level, much remains to be done. Greater impetus would be given national standardization if more organizations at industry level would become standards minded. It is at this level that the incentive for standardization is developed." — *George Harnden, Standards Division, General Electric Company, chairman, ASA Miscellaneous Projects Correlating Committee.*

• • **International Congress on Electronic Microscopy** — The French Society of Theoretic and Applied Microscopy is organizing an International Congress on Electronic Microscopy which will be held at Paris from 14 to 22, September, 1950. Three committees—Honorary, General, and Executive—have been set up in order to acquaint scientists, engineers, and industrialists the world over with the work of the Congress. The United States will be represented on the Honorary Committee by Dr F. O. Schmitt of the Massachusetts Institute of Technology, R. W. S. Wyckoff of Experimental Biological and Medical Institute, Bethesda, Md. and Prof L. Marton of the National Bureau of Standards. On the General Committee, USA will be represented by Prof R. C. Williams of the University of Michigan and Dr S. G. Ellis of RCA Laboratories, Princeton, N. J.

The work of the Congress will be carried by five sections:

I Electronic Optics and Microscopes
II Electronic Diffraction
III Application to Metallurgy
IV Application to Chemistry
V Application to Biology

In conjunction with the Congress there will be held an historic and retrospective exhibition of the microscope and its applications, as well as an exhibition of photographs obtained by the members of the Congress with the aid of their electronic microscopes.

French and English will be the official languages at the Congress.

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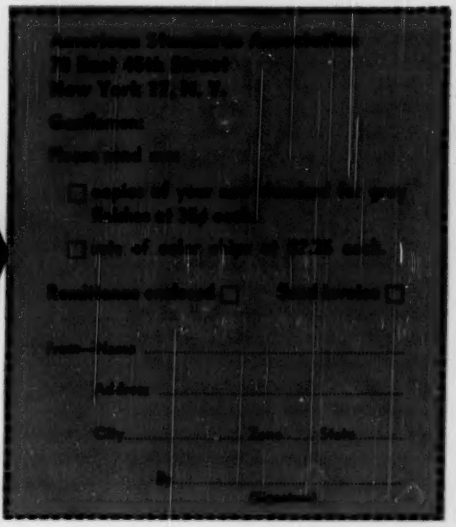
*Closely approximates Machine Tool Gray (78), a standard of the National Machine Tool Builders' Association.

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